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(57) Abstract

   Compositions and methods for the therapy and diagnosis of cancer, such as ovarian cancer, are disclosed. Compositions may comprise one or more ovarian carcinoma proteins, immunogenic portions thereof, polynucleotides that encode such portions or antibodies or immune system cells specific for such proteins. Such compositions may be used, for example, for the prevention and treatment of diseases such as ovarian cancer. Methods are further provided for identifying tumor antigens that are secreted from ovarian carcinomas and/or other tumors. Polypeptides and polynucleotides as provided herein may further be used for the diagnosis and monitoring of ovarian cancer.

(57) Abrégé

   L'invention concerne des compositions et des procédés destinés à la thérapie et au diagnostic de cancers tels que le cancer de l'ovaire. Les compositions peuvent comprendre une ou plusieurs protéines du carcinome de l'ovaire, leurs parties immunogéniques, des polynucléotides codant pour ces parties ou des anticorps ou des cellules du système immunitaire spécifique à ces protéines. Ces compositions peuvent s'utiliser, par exemple, dans la prévention et le traitement de maladies telles que le cancer de l'ovaire. L'invention concerne en outre des procédés pour identifier les antigènes tumoraux sécrétés depuis les carcinomes de l'ovaires et/ou d'autres tumeurs. En outre, les polypeptides et les polynucléotides fournis ici peuvent être utilisés dans le diagnostic et la surveillance du cancer de l'ovaire.

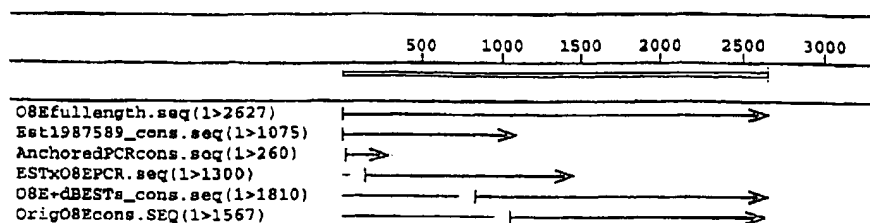INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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(54) Title: COMPOSITIONS AND METHODS FOR THERAPY AND DIAGNOSIS OF OVARIAN CANCER

(57) Abstract

Compositions and methods for the therapy and diagnosis of cancer, such as ovarian cancer, are disclosed. Compositions may comprise one or more ovarian carcinoma proteins, immunogenic portions thereof, polynucleotides that encode such portions or antibodies or immune system cells specific for such proteins. Such compositions may be used, for example, for the prevention and treatment of diseases such as ovarian cancer. Methods are further provided for identifying tumor antigens that are secreted from ovarian carcinomas and/or other tumors. Polypeptides and polynucleotides as provided herein may further be used for the diagnosis and monitoring of ovarian cancer.

Description

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COMPOSITIONS AND METHODS FOR THERAPY AND DIAGNOSIS OF OVARIAN CANCER

TECHNICAL FIELD

The present invention relates generally to ovarian cancer therapy. The invention is more specifically related to polypeptides comprising at least a portion of an ovarian carcinoma protein, and to polynucleotides encoding such polypeptides, as well as antibodies and immune system cells that specifically recognize such polypeptides. Such polypeptides, polynucleotides, antibodies and cells may be used in vaccines and pharmaceutical compositions for treatment of ovarian cancer.

BACKGROUND OF THE INVENTION

Ovarian cancer is a significant health problem for women in the United States and throughout the world. Although advances have been made in detection and therapy of this cancer, no vaccine or other universally successful method for prevention or treatment is currently available. Management of the disease currently relies on a combination of early diagnosis and aggressive treatment, which may include one or more of a variety of treatments such as surgery, radiotherapy, chemotherapy and hormone therapy. The course of treatment for a particular cancer is often selected based on a variety of prognostic parameters, including an analysis of specific tumor markers. However, the use of established markers often leads to a result that is difficult to interpret, and high mortality continues to be observed in many cancer patients.

Immunotherapies have the potential to substantially improve cancer treatment and survival. Such therapies may involve the generation or enhancement of an immune response to an ovarian carcinoma antigen. However, to date, relatively few ovarian carcinoma antigens are known and the generation of an immune response against such antigens has not been shown to be therapeutically beneficial.

Accordingly, there is a need in the art for improved methods for identifying ovarian tumor antigens and for using such antigens in the therapy of ovarian cancer. The present invention fulfills these needs and further provides other related advantages.

SUMMARY OF THE INVENTION

Briefly stated, this invention provides compositions and methods for the therapy of cancer, such as ovarian cancer. In one aspect, the present invention provides polypeptides comprising an immunogenic portion of an ovarian carcinoma protein, or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with ovarian carcinoma protein-specific antisera is not substantially diminished. Within certain embodiments, the ovarian carcinoma protein comprises a sequence that is encoded by a polynucleotide sequence selected from the group consisting of SEQ ID NOs:1-81, 313-331, 359, 366, 379, 385-387, 391 and complements of such polynucleotides.

The present invention further provides polynucleotides that encode a polypeptide as described above or a portion thereof, expression vectors comprising such polynucleotides and host cells transformed or transfected with such expression vectors.

Within other aspects, the present invention provides pharmaceutical compositions and vaccines. Pharmaceutical compositions may comprise a physiologically acceptable carrier or excipient in combination with one or more of: (i) a polypeptide comprising an immunogenic portion of an ovarian carcinoma protein, or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with ovarian carcinoma protein-specific antisera is not substantially diminished. wherein the ovarian carcinoma protein comprises an amino acid sequence encoded by a polynucleotide that comprises a sequence recited in any one of SEQ ID NOs:1-81, 313-331, 359, 366, 379, 385-387 or 391; (ii) a polynucleotide encoding such a polypeptide; (iii) an antibody that specifically binds to such a polypeptide; (iv) an antigen-presenting cell that expresses such a polypeptide and/or (v) a T cell that specifically reacts with such a polypeptide. Vaccines may comprise a non-specific immune response enhancer in combination with one or more of: (i) a polypeptide comprising an immunogenic portion of an ovarian carcinoma protein, or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with ovarian carcinoma protein-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence encoded by a

polynucleotide that comprises a sequence recited in any one of SEQ ID NOs:1-81, 313-331, 359, 366, 379, 385-387 or 391; (ii) a polynucleotide encoding such a polypeptide; (iii) an anti-idiotypic antibody that is specifically bound by an antibody that specifically binds to such a polypeptide; (iv) an antigen-presenting cell that expresses such a polypeptide and/or (v) a T cell that specifically reacts with such a polypeptide.

The present invention further provides, in other aspects, fusion proteins that comprise at least one polypeptide as described above, as well as polynucleotides encoding such fusion proteins.

Within related aspects, pharmaceutical compositions comprising a fusion protein or polynucleotide encoding a fusion protein in combination with a physiologically acceptable carrier are provided.

Vaccines are further provided, within other aspects, comprising a fusion protein or polynucleotide encoding a fusion protein in combination with a non-specific immune response enhancer.

Within further aspects, the present invention provides methods for inhibiting the development of a cancer in a patient, comprising administering to a patient a pharmaceutical composition or vaccine as recited above.

The present invention further provides, within other aspects, methods for stimulating and/or expanding T cells, comprising contacting T cells with (a) a polypeptide comprising an immunogenic portion of an ovarian carcinoma protein, or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with ovarian carcinoma protein-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence encoded by a polynucleotide that comprises a sequence recited in any one of SEQ ID NOs:1-387 or 391; (b) a polynucleotide encoding such a polypeptide and/or (c) an antigen presenting cell that expresses such a polypeptide under conditions and for a time sufficient to permit the stimulation and/or expansion of T cells. Such polypeptide, polynucleotide and/or antigen presenting cell(s) may be present within a pharmaceutical composition or vaccine, for use in stimulating and/or expanding T cells in a mammal.

Within other aspects, the present invention provides methods for inhibiting the development of ovarian cancer in a patient, comprising administering to a patient T cells prepared as described above.

Within further aspects, the present invention provides methods for inhibiting the development of ovarian cancer in a patient, comprising the steps of: (a) incubating $CD4^+$ and/or $CD8^+$ T cells isolated from a patient with one or more of: (i) a polypeptide comprising an immunogenic portion of an ovarian carcinoma protein, or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with ovarian carcinoma protein-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence encoded by a polynucleotide that comprises a sequence recited in any one of SEQ ID NOs: 1-387 or 391; (ii) a polynucleotide encoding such a polypeptide; or (iii) an antigen-presenting cell that expresses such a polypeptide; such that T cells proliferate; and (b) administering to the patient an effective amount of the proliferated T cells, and thereby inhibiting the development of ovarian cancer in the patient. The proliferated cells may be cloned prior to administration to the patient.

The present invention also provides, within other aspects, methods for identifying secreted tumor antigens. Such methods comprise the steps of: (a) implanting tumor cells in an immunodeficient mammal; (b) obtaining serum from the immunodeficient mammal after a time sufficient to permit secretion of tumor antigens into the serum; (c) immunizing an immunocompetent mammal with the serum; (d) obtaining antiserum from the immunocompetent mammal; and (e) screening a tumor expression library with the antiserum, and therefrom identifying a secreted tumor antigen. A preferred method for identifying a secreted ovarian carcinoma antigen comprises the steps of: (a) implanting ovarian carcinoma cells in a SCID mouse; (b) obtaining serum from the SCID mouse after a time sufficient to permit secretion of ovarian carcinoma antigens into the serum; (c) immunizing an immunocompetent mouse with the serum; (d) obtaining antiserum from the immunocompetent mouse; and (e) screening an ovarian carcinoma expression library with the antiserum, and therefrom identifying a secreted ovarian carcinoma antigen.

These and other aspects of the present invention will become apparent upon reference to the following detailed description and attached drawings. All references disclosed herein are hereby incorporated by reference in their entirety as if each was incorporated individually.

5   BRIEF DESCRIPTION OF THE DRAWINGS

Figures 1A-1S (SEQ ID NOs:1-71) depict partial sequences of polynucleotides encoding representative secreted ovarian carcinoma antigens.

Figures 2A-2C depict full insert sequences for three of the clones of Figure 1. Figure 2A shows the sequence designated O7E (11731; SEQ ID NO:72),

10   Figure 2B shows the sequence designated O9E (11785; SEQ ID NO:73) and Figure 2C shows the sequence designated O8E (13695; SEQ ID NO:74).

Figure 3 presents results of microarray expression analysis of the ovarian carcinoma sequence designated O8E.

Figure 4 presents a partial sequence of a polynucleotide (designated 3g;

15   SEQ ID NO:75) encoding an ovarian carcinoma sequence that is a splice fusion between the human T-cell leukemia virus type I oncoprotein TAX and osteonectin.

Figure 5 presents the ovarian carcinoma polynucleotide designated 3f (SEQ ID NO:76).

Figure 6 presents the ovarian carcinoma polynucleotide designated 6b

20   (SEQ ID NO:77).

Figures 7A and 7B present the ovarian carcinoma polynucleotides designated 8e (SEQ ID NO:78) and 8h (SEQ ID NO:79).

Figure 8 presents the ovarian carcinoma polynucleotide designated 12c (SEQ ID NO:80).

25   Figure 9 presents the ovarian carcinoma polynucleotide designated 12h (SEQ ID NO:81).

Figure 10 depicts results of microarray expression analysis of the ovarian carcinoma sequence designated 3f.

Figure 11 depicts results of microarray expression analysis of the ovarian

30   carcinoma sequence designated 6b.

Figure 12 depicts results of microarray expression analysis of the ovarian carcinoma sequence designated 8e.

Figure 13 depicts results of microarray expression analysis of the ovarian carcinoma sequence designated 12c.

Figure 14 depicts results of microarray expression analysis of the ovarian carcinoma sequence designated 12h.

Figures 15A-15EEE depict partial sequences of additional polynucleotides encoding representative secreted ovarian carcinoma antigens (SEQ ID NOs:82-310).

Figure 16 is a diagram illustrating the location of various partial O8E sequences within the full length sequence.

DETAILED DESCRIPTION OF THE INVENTION

As noted above, the present invention is generally directed to compositions and methods for the therapy of cancer, such as ovarian cancer. The compositions described herein may include immunogenic polypeptides, polynucleotides encoding such polypeptides, binding agents such as antibodies that bind to a polypeptide, antigen presenting cells (APCs) and/or immune system cells (e.g., T cells).

Polypeptides of the present invention generally comprise at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof. Certain ovarian carcinoma proteins have been identified using an immunoassay technique, and are referred to herein as ovarian carcinoma antigens. An "ovarian carcinoma antigen" is a protein that is expressed by ovarian tumor cells (preferably human cells) at a level that is at least two fold higher than the level in normal ovarian cells. Certain ovarian carcinoma antigens react detectably (within an immunoassay, such as an ELISA or Western blot) with antisera generated against serum from an immunodeficient animal implanted with a human ovarian tumor. Such ovarian carcinoma antigens are shed or secreted from an ovarian tumor into the sera of the immunodeficient animal. Accordingly, certain ovarian carcinoma antigens provided herein are secreted antigens. Certain nucleic acid sequences of the subject invention generally comprise a DNA or

RNA sequence that encodes all or a portion of such a polypeptide, or that is complementary to such a sequence.

The present invention further provides ovarian carcinoma sequences that are identified using techniques to evaluate altered expression within an ovarian tumor. Such sequences may be polynucleotide or protein sequences. Ovarian carcinoma sequences are generally expressed in an ovarian tumor at a level that is at least two fold, and preferably at least five fold, greater than the level of expression in normal ovarian tissue, as determined using a representative assay provided herein. Certain partial ovarian carcinoma polynucleotide sequences are presented herein. Proteins encoded by genes comprising such polynucleotide sequences (or complements thereof) are also considered ovarian carcinoma proteins.

Antibodies are generally immune system proteins, or antigen-binding fragments thereof, that are capable of binding to at least a portion of an ovarian carcinoma polypeptide as described herein. T cells that may be employed within the compositions provided herein are generally T cells (e.g., CD4$^-$ and/or CD8$^-$) that are specific for such a polypeptide. Certain methods described herein further employ antigen-presenting cells (such as dendritic cells or macrophages) that express an ovarian carcinoma polypeptide as provided herein.

OVARIAN CARCINOMA POLYNUCLEOTIDES

Any polynucleotide that encodes an ovarian carcinoma protein or a portion or other variant thereof as described herein is encompassed by the present invention. Preferred polynucleotides comprise at least 15 consecutive nucleotides, preferably at least 30 consecutive nucleotides, and more preferably at least 45 consecutive nucleotides, that encode a portion of an ovarian carcinoma protein. More preferably, a polynucleotide encodes an immunogenic portion of an ovarian carcinoma protein, such as an ovarian carcinoma antigen. Polynucleotides complementary to any such sequences are also encompassed by the present invention. Polynucleotides may be single-stranded (coding or antisense) or double-stranded, and may be DNA (genomic, cDNA or synthetic) or RNA molecules. Additional coding or non-coding sequences may, but need not, be present within a polynucleotide of the present invention, and a

polynucleotide may, but need not, be linked to other molecules and/or support materials.

Polynucleotides may comprise a native sequence (*i.e.*, an endogenous sequence that encodes an ovarian carcinoma protein or a portion thereof) or may comprise a variant of such a sequence. Polynucleotide variants may contain one or more substitutions, additions, deletions and/or insertions such that the immunogenicity of the encoded polypeptide is not diminished, relative to a native ovarian carcinoma protein. The effect on the immunogenicity of the encoded polypeptide may generally be assessed as described herein. Variants preferably exhibit at least about 70% identity, more preferably at least about 80% identity and most preferably at least about 90% identity to a polynucleotide sequence that encodes a native ovarian carcinoma protein or a portion thereof.

The percent identity for two polynucleotide or polypeptide sequences may be readily determined by comparing sequences using computer algorithms well known to those of ordinary skill in the art, such as Megalign, using default parameters. Comparisons between two sequences are typically performed by comparing the sequences over a comparison window to identify and compare local regions of sequence similarity. A "comparison window" as used herein, refers to a segment of at least about 20 contiguous positions, usually 30 to about 75, or 40 to about 50, in which a sequence may be compared to a reference sequence of the same number of contiguous positions after the two sequences are optimally aligned. Optimal alignment of sequences for comparison may be conducted, for example, using the Megalign program in the Lasergene suite of bioinformatics software (DNASTAR, Inc., Madison, WI), using default parameters. Preferably, the percentage of sequence identity is determined by comparing two optimally aligned sequences over a window of comparison of at least 20 positions, wherein the portion of the polynucleotide or polypeptide sequence in the window may comprise additions or deletions (*i.e.*, gaps) of 20 % or less, usually 5 to 15 %, or 10 to 12%, relative to the reference sequence (which does not contain additions or deletions). The percent identity may be calculated by determining the number of positions at which the identical nucleic acid bases or amino acid residue occurs in both sequences to yield the number of matched positions, dividing the number of matched

positions by the total number of positions in the reference sequence (*i.e.*, the window size) and multiplying the results by 100 to yield the percentage of sequence identity.

Variants may also, or alternatively, be substantially homologous to a native gene, or a portion or complement thereof. Such polynucleotide variants are capable of hybridizing under moderately stringent conditions to a naturally occurring DNA sequence encoding a native ovarian carcinoma protein (or a complementary sequence). Suitable moderately stringent conditions include prewashing in a solution of 5 X SSC, 0.5% SDS, 1.0 mM EDTA (pH 8.0); hybridizing at 50°C-65°C, 5 X SSC, overnight; followed by washing twice at 65°C for 20 minutes with each of 2X, 0.5X and 0.2X SSC containing 0.1% SDS.

It will be appreciated by those of ordinary skill in the art that, as a result of the degeneracy of the genetic code, there are many nucleotide sequences that encode a polypeptide as described herein. Some of these polynucleotides bear minimal homology to the nucleotide sequence of any native gene. Nonetheless, polynucleotides that vary due to differences in codon usage are specifically contemplated by the present invention. Further, alleles of the genes comprising the polynucleotide sequences provided herein are within the scope of the present invention. Alleles are endogenous genes that are altered as a result of one or more mutations, such as deletions, additions and/or substitutions of nucleotides. The resulting mRNA and protein may, but need not, have an altered structure or function. Alleles may be identified using standard techniques (such as hybridization, amplification and/or database sequence comparison).

Polynucleotides may be prepared using any of a variety of techniques. For example, an ovarian carcinoma polynucleotide may be identified, as described in more detail below, by screening a late passage ovarian tumor expression library with antisera generated against sera of immunocompetent mice after injection of such mice with sera from SCID mice implanted with late passage ovarian tumors. Ovarian carcinoma polynucleotides may also be identified using any of a variety of techniques designed to evaluate differential gene expression. Alternatively, polynucleotides may be amplified from cDNA prepared from ovarian tumor cells. Such polynucleotides may be amplified via polymerase chain reaction (PCR). For this approach, sequence-specific

primers may be designed based on the sequences provided herein, and may be purchased or synthesized.

An amplified portion may be used to isolate a full length gene from a suitable library (*e.g.*, an ovarian carcinoma cDNA library) using well known techniques. Within such techniques, a library (cDNA or genomic) is screened using one or more polynucleotide probes or primers suitable for amplification. Preferably, a library is size-selected to include larger molecules. Random primed libraries may also be preferred for identifying 5' and upstream regions of genes. Genomic libraries are preferred for obtaining introns and extending 5' sequences.

For hybridization techniques, a partial sequence may be labeled (*e.g.*, by nick-translation or end-labeling with ^{32}P) using well known techniques. A bacterial or bacteriophage library ,is then screened by hybridizing filters containing denatured bacterial colonies (or lawns containing phage plaques) with the labeled probe (*see* Sambrook et al., *Molecular Cloning: A Laboratory Manual*, Cold Spring Harbor Laboratories. Cold Spring Harbor, NY, 1989). Hybridizing colonies or plaques are selected and expanded, and the DNA is isolated for further analysis. cDNA clones may be analyzed to determine the amount of additional sequence by, for example, PCR using a primer from the partial sequence and a primer from the vector. Restriction maps and partial sequences may be generated to identify one or more overlapping clones. The complete sequence may then be determined using standard techniques, which may involve generating a series of deletion clones. The resulting overlapping sequences are then assembled into a single contiguous sequence. A full length cDNA molecule can be generated by ligating suitable fragments, using well known techniques.

Alternatively, there are numerous amplification techniques for obtaining a full length coding sequence from a partial cDNA sequence. Within such techniques, amplification is generally performed via PCR. Any of a variety of commercially available kits may be used to perform the amplification step. Primers may be designed using, for example, software well known in the art. Primers are preferably 22-30 nucleotides in length, have a GC content of at least 50% and anneal to the target sequence at temperatures of about 68°C to 72°C. The amplified region may be

sequenced as described above. and overlapping sequences assembled into a contiguous sequence.

One such amplification technique is inverse PCR (*see* Triglia et al., *Nucl. Acids Res. 16*:8186, 1988), which uses restriction enzymes to generate a fragment in the known region of the gene. The fragment is then circularized by intramolecular ligation and used as a template for PCR with divergent primers derived from the known region. Within an alternative approach, sequences adjacent to a partial sequence may be retrieved by amplification with a primer to a linker sequence and a primer specific to a known region. The amplified sequences are typically subjected to a second round of amplification with the same linker primer and a second primer specific to the known region. A variation on this procedure, which employs two primers that initiate extension in opposite directions from the known sequence, is described in WO 96/38591. Additional techniques include capture PCR (Lagerstrom et al.. *PCR Methods Applic. 1*:111-19, 1991) and walking PCR (Parker et al., *Nucl. Acids. Res. 19*:3055-60, 1991). Other methods employing amplification may also be employed to obtain a full length cDNA sequence.

In certain instances, it is possible to obtain a full length cDNA sequence by analysis of sequences provided in an expressed sequence tag (EST) database. such as that available from GenBank. Searches for overlapping ESTs may generally be performed using well known programs (*e.g.*, NCBI BLAST searches). and such ESTs may be used to generate a contiguous full length sequence.

Certain nucleic acid sequences of cDNA molecules encoding portions of ovarian carcinoma antigens are provided in Figures 1A-1S (SEQ ID NOS:1 to 71) and Figures 15A to 15EEE (SEQ ID NOs:82 to 310). The sequences provided in Figures 1A-1S appear to be novel. For sequences in Figures 15A-15EEE, database searches revealed matches having substantial identity. These polynucleotides were isolated by serological screening of an ovarian tumor cDNA expression library, using a technique designed to identify secreted tumor antigens. Briefly, a late passage ovarian tumor expression library was prepared from a SCID-derived human ovarian tumor (OV9334) in the vector λ-screen (Novagen). The sera used for screening were obtained by injecting immunocompetent mice with sera from SCID mice implanted with one late

passage ovarian tumors. This technique permits the identification of cDNA molecules that encode immunogenic portions of secreted tumor antigens.

The polynucleotides recited herein, as well as full length polynucleotides comprising such sequences, other portions of such full length polynucleotides, and

5 sequences complementary to all or a portion of such full length molecules, are specifically encompassed by the present invention. It will be apparent to those of ordinary skill in the art that this technique can also be applied to the identification of antigens that are secreted from other types of tumors.

Other nucleic acid sequences of cDNA molecules encoding portions of

10 ovarian carcinoma proteins are provided in Figures 4-9 (SEQ ID NOs:75-81), as well as SEQ ID NOs:313-384. These sequences were identified by screening a microarray of cDNAs for tumor-associated expression (*i.e.*, expression that is at least five fold greater in an ovarian tumor than in normal ovarian tissue, as determined using a representative assay provided herein). Such screens were performed using a Synteni microarray (Palo

15 Alto, CA) according to the manufacturer's instructions (and essentially as described by Schena et al., *Proc. Natl. Acad. Sci. USA 93*:10614-10619, 1996 and Heller et al., *Proc. Natl. Acad. Sci. USA 94*:2150-2155, 1997). SEQ ID NOs:311 and 391 provide full length sequences incorporating certain of these nucleic acid sequences.

Any of a variety of well known techniques may be used to evaluate

20 tumor-associated expression of a cDNA. For example, hybridization techniques using labeled polynucleotide probes may be employed. Alternatively, or in addition, amplification techniques such as real-time PCR may be used (*see* Gibson et al., *Genome Research 6*:995-1001, 1996; Heid et al., *Genome Research 6*:986-994, 1996). Real-time PCR is a technique that evaluates the level of PCR product accumulation during

25 amplification. This technique permits quantitative evaluation of mRNA levels in multiple samples. Briefly, mRNA is extracted from tumor and normal tissue and cDNA is prepared using standard techniques. Real-time PCR may be performed, for example, using a Perkin Elmer/Applied Biosystems (Foster City, CA) 7700 Prism instrument. Matching primers and fluorescent probes may be designed for genes of interest using,

30 for example, the primer express program provided by Perkin Elmer/Applied Biosystems (Foster City, CA). Optimal concentrations of primers and probes may be initially

determined by those of ordinary skill in the art, and control (*e.g.,* β-actin) primers and probes may be obtained commercially from, for example, Perkin Elmer/Applied Biosystems (Foster City, CA). To quantitate the amount of specific RNA in a sample, a standard curve is generated alongside using a plasmid containing the gene of interest. Standard curves may be generated using the Ct values determined in the real-time PCR, which are related to the initial cDNA concentration used in the assay. Standard dilutions ranging from $10\text{-}10^6$ copies of the gene of interest are generally sufficient. In addition, a standard curve is generated for the control sequence. This permits standardization of initial RNA content of a tissue sample to the amount of control for comparison purposes.

Polynucleotide variants may generally be prepared by any method known in the art, including chemical synthesis by, for example, solid phase phosphoramidite chemical synthesis. Modifications in a polynucleotide sequence may also be introduced using standard mutagenesis techniques, such as oligonucleotide-directed site-specific mutagenesis (*see* Adelman et al., *DNA* 2:183, 1983). Alternatively, RNA molecules may be generated by *in vitro* or *in vivo* transcription of DNA sequences encoding an ovarian carcinoma antigen, or portion thereof, provided that the DNA is incorporated into a vector with a suitable RNA polymerase promoter (such as T7 or SP6). Certain portions may be used to prepare an encoded polypeptide, as described herein. In addition, or alternatively, a portion may be administered to a patient such that the encoded polypeptide is generated *in vivo*.

A portion of a sequence complementary to a coding sequence (*i.e.,* an antisense polynucleotide) may also be used as a probe or to modulate gene expression. cDNA constructs that can be transcribed into antisense RNA may also be introduced into cells or tissues to facilitate the production of antisense RNA. An antisense polynucleotide may be used, as described herein, to inhibit expression of an ovarian carcinoma protein. Antisense technology can be used to control gene expression through triple-helix formation, which compromises the ability of the double helix to open sufficiently for the binding of polymerases, transcription factors or regulatory molecules (*see* Gee et al., *In* Huber and Carr, *Molecular and Immunologic Approaches*, Futura Publishing Co. (Mt. Kisco, NY; 1994). Alternatively, an antisense molecule

may be designed to hybridize with a control region of a gene (*e.g.*, promoter. enhancer or transcription initiation site), and block transcription of the gene; or to block translation by inhibiting binding of a transcript to ribosomes.

Any polynucleotide may be further modified to increase stability *in vivo*.
5   Possible modifications include, but are not limited to, the addition of flanking sequences at the 5' and/or 3' ends; the use of phosphorothioate or 2' O-methyl rather than phosphodiesterase linkages in the backbone; and/or the inclusion of nontraditional bases such as inosine, queosine and wybutosine, as well as acetyl- methyl-, thio- and other modified forms of adenine, cytidine, guanine, thymine and uridine.

10 Nucleotide sequences as described herein may be joined to a variety of other nucleotide sequences using established recombinant DNA techniques. For example, a polynucleotide may be cloned into any of a variety of cloning vectors, including plasmids, phagemids, lambda phage derivatives and cosmids. Vectors of particular interest include expression vectors, replication vectors, probe generation
15 vectors and sequencing vectors. In general, a vector will contain an origin of replication functional in at least one organism, convenient restriction endonuclease sites and one or more selectable markers. Other elements will depend upon the desired use, and will be apparent to those of ordinary skill in the art.

Within certain embodiments, polynucleotides may be formulated so as to
20 permit entry into a cell of a mammal, and expression therein. Such formulations are particularly useful for therapeutic purposes. as described below. Those of ordinary skill in the art will appreciate that there are many ways to achieve expression of a polynucleotide in a target cell, and any suitable method may be employed. For example, a polynucleotide may be incorporated into a viral vector such as, but not
25 limited to, adenovirus, adeno-associated virus, retrovirus, or vaccinia or other pox virus (*e.g.*, avian pox virus). Techniques for incorporating DNA into such vectors are well known to those of ordinary skill in the art. A retroviral vector may additionally transfer or incorporate a gene for a selectable marker (to aid in the identification or selection of transduced cells) and/or a targeting moiety, such as a gene that encodes a ligand for a
30 receptor on a specific target cell, to render the vector target specific. Targeting may

also be accomplished using an antibody, by methods known to those of ordinary skill in the art.

Other formulations for therapeutic purposes include colloidal dispersion systems, such as macromolecule complexes, nanocapsules, microspheres, beads, and
5   lipid-based systems including oil-in-water emulsions, micelles, mixed micelles, and liposomes. A preferred colloidal system for use as a delivery vehicle *in vitro* and *in vivo* is a liposome (*i.e.*, an artificial membrane vesicle). The preparation and use of such systems is well known in the art.

10   OVARIAN CARCINOMA POLYPEPTIDES

Within the context of the present invention, polypeptides may comprise at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof, as described herein. As noted above, certain ovarian carcinoma proteins are ovarian carcinoma antigens that are expressed by ovarian tumor cells and react detectably
15   within an immunoassay (such as an ELISA) with antisera generated against serum from an immunodeficient animal implanted with an ovarian tumor. Other ovarian carcinoma proteins are encoded by ovarian carcinoma polynucleotides recited herein. Polypeptides as described herein may be of any length. Additional sequences derived from the native protein and/or heterologous sequences may be present, and such sequences may (but
20   need not) possess further immunogenic or antigenic properties.

An "immunogenic portion," as used herein is a portion of an antigen that is recognized (*i.e.*, specifically bound) by a B-cell and/or T-cell surface antigen receptor. Such immunogenic portions generally comprise at least 5 amino acid residues, more preferably at least 10, and still more preferably at least 20 amino acid
25   residues of an ovarian carcinoma protein or a variant thereof. Preferred immunogenic portions are encoded by cDNA molecules isolated as described herein. Further immunogenic portions may generally be identified using well known techniques, such as those summarized in Paul, *Fundamental Immunology*, 3rd ed., 243-247 (Raven Press, 1993) and references cited therein. Such techniques include screening polypeptides for
30   the ability to react with ovarian carcinoma protein-specific antibodies, antisera and/or T-cell lines or clones. As used herein, antisera and antibodies are "ovarian carcinoma

protein-specific" if they specifically bind to an ovarian carcinoma protein (*i.e.*, they react with the ovarian carcinoma protein in an ELISA or other immunoassay, and do not react detectably with unrelated proteins). Such antisera, antibodies and T cells may be prepared as described herein, and using well known techniques. An immunogenic portion of a native ovarian carcinoma protein is a portion that reacts with such antisera, antibodies and/or T-cells at a level that is not substantially less than the reactivity of the full length polypeptide (*e.g.*, in an ELISA and/or T-cell reactivity assay). Such immunogenic portions may react within such assays at a level that is similar to or greater than the reactivity of the full length protein. Such screens may generally be performed using methods well known to those of ordinary skill in the art, such as those described in Harlow and Lane, *Antibodies: A Laboratory Manual*, Cold Spring Harbor Laboratory, 1988. For example, a polypeptide may be immobilized on a solid support and contacted with patient sera to allow binding of antibodies within the sera to the immobilized polypeptide. Unbound sera may then be removed and bound antibodies detected using, for example, ^{125}I-labeled Protein A.

As noted above, a composition may comprise a variant of a native ovarian carcinoma protein. A polypeptide "variant," as used herein, is a polypeptide that differs from a native ovarian carcinoma protein in one or more substitutions, deletions, additions and/or insertions, such that the immunogenicity of the polypeptide is not substantially diminished. In other words, the ability of a variant to react with ovarian carcinoma protein-specific antisera may be enhanced or unchanged, relative to the native ovarian carcinoma protein, or may be diminished by less than 50%, and preferably less than 20%, relative to the native ovarian carcinoma protein. Such variants may generally be identified by modifying one of the above polypeptide sequences and evaluating the reactivity of the modified polypeptide with ovarian carcinoma protein-specific antibodies or antisera as described herein. Preferred variants include those in which one or more portions, such as an N-terminal leader sequence or transmembrane domain, have been removed. Other preferred variants include variants in which a small portion (*e.g.*, 1-30 amino acids, preferably 5-15 amino acids) has been removed from the N- and/or C-terminal of the mature protein.

Polypeptide variants preferably exhibit at least about 70%, more preferably at least about 90% and most preferably at least about 95% identity to the native polypeptide. Preferably, a variant contains conservative substitutions. A "conservative substitution" is one in which an amino acid is substituted for another amino acid that has similar properties, such that one skilled in the art of peptide chemistry would expect the secondary structure and hydropathic nature of the polypeptide to be substantially unchanged. Amino acid substitutions may generally be made on the basis of similarity in polarity, charge, solubility, hydrophobicity, hydrophilicity and/or the amphipathic nature of the residues. For example, negatively charged amino acids include aspartic acid and glutamic acid; positively charged amino acids include lysine and arginine; and amino acids with uncharged polar head groups having similar hydrophilicity values include leucine, isoleucine and valine; glycine and alanine; asparagine and glutamine; and serine, threonine, phenylalanine and tyrosine. Other groups of amino acids that may represent conservative changes include: (1) ala, pro, gly, glu, asp, gln, asn, ser, thr; (2) cys, ser, tyr, thr; (3) val, ile, leu, met, ala, phe; (4) lys, arg, his; and (5) phe, tyr, trp, his. A variant may also, or alternatively, contain nonconservative changes. Variants may also (or alternatively) be modified by, for example, the deletion or addition of amino acids that have minimal influence on the immunogenicity, secondary structure and hydropathic nature of the polypeptide.

As noted above, polypeptides may comprise a signal (or leader) sequence at the N-terminal end of the protein which co-translationally or post-translationally directs transfer of the protein. The polypeptide may also be conjugated to a linker or other sequence for ease of synthesis, purification or identification of the polypeptide (e.g., poly-His), or to enhance binding of the polypeptide to a solid support. For example, a polypeptide may be conjugated to an immunoglobulin Fc region.

Polypeptides may be prepared using any of a variety of well known techniques. Recombinant polypeptides encoded by DNA sequences as described above may be readily prepared from the DNA sequences using any of a variety of expression vectors known to those of ordinary skill in the art. Expression may be achieved in any appropriate host cell that has been transformed or transfected with an expression vector containing a DNA molecule that encodes a recombinant polypeptide. Suitable host

cells include prokaryotes, yeast and higher eukaryotic cells. Preferably, the host cells employed are *E. coli*, yeast or a mammalian cell line such as COS or CHO. Supernatants from suitable host/vector systems which secrete recombinant protein or polypeptide into culture media may be first concentrated using a commercially available

5   filter. Following concentration, the concentrate may be applied to a suitable purification matrix such as an affinity matrix or an ion exchange resin. Finally, one or more reverse phase HPLC steps can be employed to further purify a recombinant polypeptide.

Portions and other variants having fewer than about 100 amino acids,

10 and generally fewer than about 50 amino acids, may also be generated by synthetic means, using techniques well known to those of ordinary skill in the art. For example, such polypeptides may be synthesized using any of the commercially available solid-phase techniques, such as the Merrifield solid-phase synthesis method, where amino acids are sequentially added to a growing amino acid chain. *See* Merrifield, *J. Am.*

15 *Chem. Soc. 85*:2149-2146, 1963. Equipment for automated synthesis of polypeptides is commercially available from suppliers such as Applied BioSystems, Inc. (Foster City, CA), and may be operated according to the manufacturer's instructions.

Within certain specific embodiments, a polypeptide may be a fusion protein that comprises multiple polypeptides as described herein, or that comprises one

20 polypeptide as described herein and a known tumor antigen, such as an ovarian carcinoma protein or a variant of such a protein. A fusion partner may, for example, assist in providing T helper epitopes (an immunological fusion partner), preferably T helper epitopes recognized by humans, or may assist in expressing the protein (an expression enhancer) at higher yields than the native recombinant protein. Certain

25 preferred fusion partners are both immunological and expression enhancing fusion partners. Other fusion partners may be selected so as to increase the solubility of the protein or to enable the protein to be targeted to desired intracellular compartments. Still further fusion partners include affinity tags, which facilitate purification of the protein.

30   Fusion proteins may generally be prepared using standard techniques, including chemical conjugation. Preferably, a fusion protein is expressed as a

recombinant protein, allowing the production of increased levels, relative to a non-fused protein, in an expression system. Briefly, DNA sequences encoding the polypeptide components may be assembled separately, and ligated into an appropriate expression vector. The 3' end of the DNA sequence encoding one polypeptide component is ligated, with or without a peptide linker, to the 5' end of a DNA sequence encoding the second polypeptide component so that the reading frames of the sequences are in phase. This permits translation into a single fusion protein that retains the biological activity of both component polypeptides.

A peptide linker sequence may be employed to separate the first and the second polypeptide components by a distance sufficient to ensure that each polypeptide folds into its secondary and tertiary structures. Such a peptide linker sequence is incorporated into the fusion protein using standard techniques well known in the art. Suitable peptide linker sequences may be chosen based on the following factors: (1) their ability to adopt a flexible extended conformation; (2) their inability to adopt a secondary structure that could interact with functional epitopes on the first and second polypeptides; and (3) the lack of hydrophobic or charged residues that might react with the polypeptide functional epitopes. Preferred peptide linker sequences contain Gly, Asn and Ser residues. Other near neutral amino acids, such as Thr and Ala may also be used in the linker sequence. Amino acid sequences which may be usefully employed as linkers include those disclosed in Maratea et al., *Gene* 40:39-46, 1985; Murphy et al., *Proc. Natl. Acad. Sci. USA* 83:8258-8262, 1986; U.S. Patent No. 4,935,233 and U.S. Patent No. 4,751,180. The linker sequence may generally be from 1 to about 50 amino acids in length. Linker sequences are not required when the first and second polypeptides have non-essential N-terminal amino acid regions that can be used to separate the functional domains and prevent steric interference.

The ligated DNA sequences are operably linked to suitable transcriptional or translational regulatory elements. The regulatory elements responsible for expression of DNA are located only 5' to the DNA sequence encoding the first polypeptides. Similarly, stop codons required to end translation and transcription termination signals are only present 3' to the DNA sequence encoding the second polypeptide.

Fusion proteins are also provided that comprise a polypeptide of the present invention together with an unrelated immunogenic protein. Preferably the immunogenic protein is capable of eliciting a recall response. Examples of such proteins include tetanus, tuberculosis and hepatitis proteins (see, for example, Stoute et al. *New Engl. J. Med.,* *336*:86-91, 1997).

Within preferred embodiments, an immunological fusion partner is derived from protein D, a surface protein of the gram-negative bacterium Haemophilus influenza B (WO 91/18926). Preferably, a protein D derivative comprises approximately the first third of the protein (e.g., the first N-terminal 100-110 amino acids), and a protein D derivative may be lipidated. Within certain preferred embodiments, the first 109 residues of a Lipoprotein D fusion partner is included on the N-terminus to provide the polypeptide with additional exogenous T-cell epitopes and to increase the expression level in *E. coli* (thus functioning as an expression enhancer). The lipid tail ensures optimal presentation of the antigen to antigen present cells. Other fusion partners include the non-structural protein from influenzae virus, NS1 (hemaglutinin). Typically, the N-terminal 81 amino acids are used, although different fragments that include T-helper epitopes may be used.

In another embodiment, the immunological fusion partner is the protein known as LYTA, or a portion thereof (preferably a C-terminal portion). LYTA is derived from *Streptococcus pneumoniae*, which synthesizes an N-acetyl-L-alanine amidase known as amidase LYTA (encoded by the LytA gene: *Gene* *43*:265-292, 1986). LYTA is an autolysin that specifically degrades certain bonds in the peptidoglycan backbone. The C-terminal domain of the LYTA protein is responsible for the affinity to the choline or to some choline analogues such as DEAE. This property has been exploited for the development of *E. coli* C-LYTA expressing plasmids useful for expression of fusion proteins. Purification of hybrid proteins containing the C-LYTA fragment at the amino terminus has been described (see *Biotechnology* *10*:795-798, 1992). Within a preferred embodiment, a repeat portion of LYTA may be incorporated into a fusion protein. A repeat portion is found in the C-terminal region starting at residue 178. A particularly preferred repeat portion incorporates residues 188-305.

In general, polypeptides (including fusion proteins) and polynucleotides as described herein are isolated. An "isolated" polypeptide or polynucleotide is one that is removed from its original environment. For example, a naturally-occurring protein is isolated if it is separated from some or all of the coexisting materials in the natural system. Preferably, such polypeptides are at least about 90% pure, more preferably at least about 95% pure and most preferably at least about 99% pure. A polynucleotide is considered to be isolated if, for example, it is cloned into a vector that is not a part of the natural environment.

BINDING AGENTS

The present invention further provides agents, such as antibodies and antigen-binding fragments thereof, that specifically bind to an ovarian carcinoma protein. As used herein, an antibody, or antigen-binding fragment thereof, is said to "specifically bind" to an ovarian carcinoma protein if it reacts at a detectable level (within, for example, an ELISA) with an ovarian carcinoma protein, and does not react detectably with unrelated proteins under similar conditions. As used herein, "binding" refers to a noncovalent association between two separate molecules such that a "complex" is formed. The ability to bind may be evaluated by, for example, determining a binding constant for the formation of the complex. The binding constant is the value obtained when the concentration of the complex is divided by the product of the component concentrations. In general, two compounds are said to "bind," in the context of the present invention, when the binding constant for complex formation exceeds about 10^3 L/mol. The binding constant maybe determined using methods well known in the art.

Binding agents may be further capable of differentiating between patients with and without a cancer, such as ovarian cancer, using the representative assays provided herein. In other words, antibodies or other binding agents that bind to a ovarian carcinoma antigen will generate a signal indicating the presence of a cancer in at least about 20% of patients with the disease, and will generate a negative signal indicating the absence of the disease in at least about 90% of individuals without the cancer. To determine whether a binding agent satisfies this requirement, biological

samples (*e.g.*, blood, sera, leukophoresis, urine and/or tumor biopsies) from patients with and without a cancer (as determined using standard clinical tests) may be assayed as described herein for the presence of polypeptides that bind to the binding agent. It will be apparent that a statistically significant number of samples with and without the disease should be assayed. Each binding agent should satisfy the above criteria; however, those of ordinary skill in the art will recognize that binding agents may be used in combination to improve sensitivity.

Any agent that satisfies the above requirements may be a binding agent. For example, a binding agent may be a ribosome, with or without a peptide component, an RNA molecule or a polypeptide. In a preferred embodiment, a binding agent is an antibody or an antigen-binding fragment thereof. Antibodies may be prepared by any of a variety of techniques known to those of ordinary skill in the art. *See, e.g.,* Harlow and Lane, *Antibodies: A Laboratory Manual,* Cold Spring Harbor Laboratory, 1988. In general, antibodies can be produced by cell culture techniques, including the generation of monoclonal antibodies as described herein, or via transfection of antibody genes into suitable bacterial or mammalian cell hosts, in order to allow for the production of recombinant antibodies. In one technique, an immunogen comprising the polypeptide is initially injected into any of a wide variety of mammals (*e.g.*, mice, rats, rabbits, sheep or goats). In this step, the polypeptides of this invention may serve as the immunogen without modification. Alternatively, particularly for relatively short polypeptides, a superior immune response may be elicited if the polypeptide is joined to a carrier protein, such as bovine serum albumin or keyhole limpet hemocyanin. The immunogen is injected into the animal host, preferably according to a predetermined schedule incorporating one or more booster immunizations, and the animals are bled periodically. Polyclonal antibodies specific for the polypeptide may then be purified from such antisera by, for example, affinity chromatography using the polypeptide coupled to a suitable solid support.

Monoclonal antibodies specific for an antigenic polypeptide of interest may be prepared, for example, using the technique of Kohler and Milstein, *Eur. J. Immunol.* 6:511-519, 1976, and improvements thereto. Briefly, these methods involve the preparation of immortal cell lines capable of producing antibodies having the

desired specificity (*i.e.*, reactivity with the polypeptide of interest). Such cell lines may be produced, for example, from spleen cells obtained from an animal immunized as described above. The spleen cells are then immortalized by, for example, fusion with a myeloma cell fusion partner, preferably one that is syngeneic with the immunized animal. A variety of fusion techniques may be employed. For example, the spleen cells and myeloma cells may be combined with a nonionic detergent for a few minutes and then plated at low density on a selective medium that supports the growth of hybrid cells, but not myeloma cells. A preferred selection technique uses HAT (hypoxanthine, aminopterin, thymidine) selection. After a sufficient time, usually about 1 to 2 weeks, colonies of hybrids are observed. Single colonies are selected and their culture supernatants tested for binding activity against the polypeptide. Hybridomas having high reactivity and specificity are preferred.

Monoclonal antibodies may be isolated from the supernatants of growing hybridoma colonies. In addition, various techniques may be employed to enhance the yield, such as injection of the hybridoma cell line into the peritoneal cavity of a suitable vertebrate host, such as a mouse. Monoclonal antibodies may then be harvested from the ascites fluid or the blood. Contaminants may be removed from the antibodies by conventional techniques, such as chromatography, gel filtration, precipitation, and extraction. The polypeptides of this invention may be used in the purification process in, for example, an affinity chromatography step.

Within certain embodiments, the use of antigen-binding fragments of antibodies may be preferred. Such fragments include Fab fragments, which may be prepared using standard techniques. Briefly, immunoglobulins may be purified from rabbit serum by affinity chromatography on Protein A bead columns (Harlow and Lane, *Antibodies: A Laboratory Manual*, Cold Spring Harbor Laboratory, 1988) and digested by papain to yield Fab and Fc fragments. The Fab and Fc fragments may be separated by affinity chromatography on protein A bead columns.

Monoclonal antibodies of the present invention may be coupled to one or more therapeutic agents. Suitable agents in this regard include radionuclides, differentiation inducers, drugs, toxins, and derivatives thereof. Preferred radionuclides include ^{90}Y, ^{123}I, ^{125}I, ^{131}I, ^{186}Re, ^{188}Re, ^{211}At, and ^{212}Bi. Preferred drugs include

methotrexate, and pyrimidine and purine analogs. Preferred differentiation inducers include phorbol esters and butyric acid. Preferred toxins include ricin, abrin, diptheria toxin, cholera toxin, gelonin, Pseudomonas exotoxin, Shigella toxin, and pokeweed antiviral protein.

A therapeutic agent may be coupled (e.g., covalently bonded) to a suitable monoclonal antibody either directly or indirectly (e.g., via a linker group). A direct reaction between an agent and an antibody is possible when each possesses a substituent capable of reacting with the other. For example, a nucleophilic group, such as an amino or sulfhydryl group, on one may be capable of reacting with a carbonyl-containing group, such as an anhydride or an acid halide, or with an alkyl group containing a good leaving group (e.g., a halide) on the other.

Alternatively, it may be desirable to couple a therapeutic agent and an antibody via a linker group. A linker group can function as a spacer to distance an antibody from an agent in order to avoid interference with binding capabilities. A linker group can also serve to increase the chemical reactivity of a substituent on an agent or an antibody, and thus increase the coupling efficiency. An increase in chemical reactivity may also facilitate the use of agents, or functional groups on agents, which otherwise would not be possible.

It will be evident to those skilled in the art that a variety of bifunctional or polyfunctional reagents, both homo- and hetero-functional (such as those described in the catalog of the Pierce Chemical Co., Rockford, IL), may be employed as the linker group. Coupling may be effected, for example, through amino groups, carboxyl groups, sulfhydryl groups or oxidized carbohydrate residues. There are numerous references describing such methodology, e.g., U.S. Patent No. 4,671,958, to Rodwell et al.

Where a therapeutic agent is more potent when free from the antibody portion of the immunoconjugates of the present invention, it may be desirable to use a linker group which is cleavable during or upon internalization into a cell. A number of different cleavable linker groups have been described. The mechanisms for the intracellular release of an agent from these linker groups include cleavage by reduction of a disulfide bond (e.g., U.S. Patent No. 4,489,710, to Spitler), by irradiation of a photolabile bond (e.g., U.S. Patent No. 4,625,014, to Senter et al.), by hydrolysis of

derivatized amino acid side chains (*e.g.*, U.S. Patent No. 4,638,045, to Kohn et al.), by serum complement-mediated hydrolysis (*e.g.*, U.S. Patent No. 4,671,958, to Rodwell et al.), and acid-catalyzed hydrolysis (*e.g.*, U.S. Patent No. 4,569,789, to Blattler et al.).

5   It may be desirable to couple more than one agent to an antibody. In one embodiment, multiple molecules of an agent are coupled to one antibody molecule. In another embodiment, more than one type of agent may be coupled to one antibody. Regardless of the particular embodiment, immunoconjugates with more than one agent may be prepared in a variety of ways. For example, more than one agent may be coupled directly to an antibody molecule, or linkers which provide multiple sites for
10   attachment can be used. Alternatively, a carrier can be used.

A carrier may bear the agents in a variety of ways, including covalent bonding either directly or via a linker group. Suitable carriers include proteins such as albumins (*e.g.*, U.S. Patent No. 4,507,234, to Kato et al.), peptides and polysaccharides such as aminodextran (*e.g.*, U.S. Patent No. 4,699,784, to Shih et al.). A carrier may
15   also bear an agent by noncovalent bonding or by encapsulation, such as within a liposome vesicle (*e.g.*, U.S. Patent Nos. 4,429,008 and 4,873,088). Carriers specific for radionuclide agents include radiohalogenated small molecules and chelating compounds. For example, U.S. Patent No. 4,735,792 discloses representative radiohalogenated small molecules and their synthesis. A radionuclide chelate may be
20   formed from chelating compounds that include those containing nitrogen and sulfur atoms as the donor atoms for binding the metal, or metal oxide, radionuclide. For example, U.S. Patent No. 4,673,562, to Davison et al. discloses representative chelating compounds and their synthesis.

A variety of routes of administration for the antibodies and
25   immunoconjugates may be used. Typically, administration will be intravenous, intramuscular, subcutaneous or in the bed of a resected tumor. It will be evident that the precise dose of the antibody/immunoconjugate will vary depending upon the antibody used, the antigen density on the tumor, and the rate of clearance of the antibody.

Also provided herein are anti-idiotypic antibodies that mimic an
30   immunogenic portion of an ovarian carcinoma protein. Such antibodies may be raised against an antibody, or antigen-binding fragment thereof, that specifically binds to an

immunogenic portion of an ovarian carcinoma protein, using well known techniques. Anti-idiotypic antibodies that mimic an immunogenic portion of an ovarian carcinoma protein are those antibodies that bind to an antibody, or antigen-binding fragment thereof, that specifically binds to an immunogenic portion of an ovarian carcinoma protein, as described herein.

T CELLS

Immunotherapeutic compositions may also, or alternatively, comprise T cells specific for an ovarian carcinoma protein. Such cells may generally be prepared *in vitro* or *ex vivo*, using standard procedures. For example, T cells may be present within (or isolated from) bone marrow, peripheral blood or a fraction of bone marrow or peripheral blood of a mammal, such as a patient, using a commercially available cell separation system, such as the CEPRATE™ system, available from CellPro Inc., Bothell WA (see also U.S. Patent No. 5,240,856; U.S. Patent No. 5,215,926; WO 89/06280; WO 91/16116 and WO 92/07243). Alternatively, T cells may be derived from related or unrelated humans, non-human animals, cell lines or cultures.

T cells may be stimulated with an ovarian carcinoma polypeptide, polynucleotide encoding an ovarian carcinoma polypeptide and/or an antigen presenting cell (APC) that expresses such a polypeptide. Such stimulation is performed under conditions and for a time sufficient to permit the generation of T cells that are specific for the polypeptide. Preferably, an ovarian carcinoma polypeptide or polynucleotide is present within a delivery vehicle, such as a microsphere, to facilitate the generation of specific T cells.

T cells are considered to be specific for an ovarian carcinoma polypeptide if the T cells kill target cells coated with an ovarian carcinoma polypeptide or expressing a gene encoding such a polypeptide. T cell specificity may be evaluated using any of a variety of standard techniques. For example, within a chromium release assay or proliferation assay, a stimulation index of more than two fold increase in lysis and/or proliferation, compared to negative controls, indicates T cell specificity. Such assays may be performed, for example, as described in Chen et al., *Cancer Res.* 54:1065-1070, 1994. Alternatively, detection of the proliferation of T cells may be

accomplished by a variety of known techniques. For example, T cell proliferation can be detected by measuring an increased rate of DNA synthesis (*e.g.*, by pulse-labeling cultures of T cells with tritiated thymidine and measuring the amount of tritiated thymidine incorporated into DNA). Contact with an ovarian carcinoma polypeptide (200 ng/ml - 100 μg/ml, preferably 100 ng/ml - 25 μg/ml) for 3 - 7 days should result in at least a two fold increase in proliferation of the T cells and/or contact as described above for 2-3 hours should result in activation of the T cells, as measured using standard cytokine assays in which a two fold increase in the level of cytokine release (*e.g.*, TNF or IFN-γ) is indicative of T cell activation (*see* Coligan et al., Current Protocols in Immunology, vol. 1, Wiley Interscience (Greene 1998). T cells that have been activated in response to an ovarian carcinoma polypeptide, polynucleotide or ovarian carcinoma polypeptide-expressing APC may be CD4⁺ and/or CD8⁺. Ovarian carcinoma polypeptide-specific T cells may be expanded using standard techniques. Within preferred embodiments, the T cells are derived from a patient or a related or unrelated donor and are administered to the patient following stimulation and expansion.

For therapeutic purposes, CD4$^+$ or CD8$^+$ T cells that proliferate in response to an ovarian carcinoma polypeptide. polynucleotide or APC can be expanded in number either *in vitro* or *in vivo*. Proliferation of such T cells *in vitro* may be accomplished in a variety of ways. For example, the T cells can be re-exposed to an ovarian carcinoma polypeptide, with or without the addition of T cell growth factors, such as interleukin-2, and/or stimulator cells that synthesize an ovarian carcinoma polypeptide. Alternatively, one or more T cells that proliferate in the presence of an ovarian carcinoma polypeptide can be expanded in number by cloning. Methods for cloning cells are well known in the art, and include limiting dilution. Following expansion, the cells may be administered back to the patient as described, for example, by Chang et al., *Crit. Rev. Oncol. Hematol. 22*:213, 1996.

PHARMACEUTICAL COMPOSITIONS AND VACCINES

Within certain aspects, polypeptides, polynucleotides, binding agents and/or immune system cells as described herein may be incorporated into

pharmaceutical compositions or vaccines. Pharmaceutical compositions comprise one or more such compounds or cells and a physiologically acceptable carrier. Vaccines may comprise one or more such compounds or cells and a non-specific immune response enhancer. A non-specific immune response enhancer may be any substance that enhances an immune response to an exogenous antigen. Examples of non-specific immune response enhancers include adjuvants, biodegradable microspheres (e.g., polylactic galactide) and liposomes (into which the compound is incorporated; see e.g., Fullerton, U.S. Patent No. 4,235,877). Vaccine preparation is generally described in, for example, M.F. Powell and M.J. Newman, eds., "Vaccine Design (the subunit and adjuvant approach)," Plenum Press (NY, 1995). Pharmaceutical compositions and vaccines within the scope of the present invention may also contain other compounds, which may be biologically active or inactive. For example, one or more immunogenic portions of other tumor antigens may be present, either incorporated into a fusion polypeptide or as a separate compound within the composition or vaccine.

A pharmaceutical composition or vaccine may contain DNA encoding one or more of the polypeptides as described above, such that the polypeptide is generated in situ. As noted above, the DNA may be present within any of a variety of delivery systems known to those of ordinary skill in the art, including nucleic acid expression systems, bacteria and viral expression systems. Appropriate nucleic acid expression systems contain the necessary DNA sequences for expression in the patient (such as a suitable promoter and terminating signal). Bacterial delivery systems involve the administration of a bacterium (such as Bacillus-Calmette-Guerrin) that expresses an immunogenic portion of the polypeptide on its cell surface. In a preferred embodiment, the DNA may be introduced using a viral expression system (e.g., vaccinia or other pox virus, retrovirus, or adenovirus), which may involve the use of a non-pathogenic (defective), replication competent virus. Suitable systems are disclosed, for example, in Fisher-Hoch et al., PNAS 86:317-321, 1989; Flexner et al., Ann. N.Y. Acad. Sci. 569:86-103, 1989; Flexner et al., Vaccine 8:17-21, 1990; U.S. Patent Nos. 4,603,112, 4,769,330, and 5,017,487; WO 89/01973; U.S. Patent No. 4,777,127; GB 2,200,651; EP 0,345,242; WO 91/02805; Berkner, Biotechniques 6:616-627, 1988; Rosenfeld et al., Science 252:431-434, 1991; Kolls et al., PNAS 91:215-219, 1994; Kass-Eisler et al.,

PNAS 90:11498-11502, 1993; Guzman et al., *Circulation 88*:2838-2848, 1993; and Guzman et al., *Cir. Res. 73*:1202-1207, 1993. Techniques for incorporating DNA into such expression systems are well known to those of ordinary skill in the art. The DNA may also be "naked," as described, for example, in Ulmer et al., *Science 259*:1745-1749, 1993 and reviewed by Cohen, *Science 259*:1691-1692, 1993. The uptake of naked DNA may be increased by coating the DNA onto biodegradable beads, which are efficiently transported into the cells.

While any suitable carrier known to those of ordinary skill in the art may be employed in the pharmaceutical compositions of this invention, the type of carrier will vary depending on the mode of administration. Compositions of the present invention may be formulated for any appropriate manner of administration, including for example, topical, oral, nasal, intravenous, intracranial, intraperitoneal, subcutaneous or intramuscular administration. For parenteral administration, such as subcutaneous injection, the carrier preferably comprises water, saline, alcohol, a fat, a wax or a buffer. For oral administration, any of the above carriers or a solid carrier, such as mannitol, lactose, starch, magnesium stearate, sodium saccharine, talcum, cellulose, glucose, sucrose, and magnesium carbonate, may be employed. Biodegradable microspheres (*e.g.*, polylactate polyglycolate) may also be employed as carriers for the pharmaceutical compositions of this invention. Suitable biodegradable microspheres are disclosed, for example, in U.S. Patent Nos. 4,897,268 and 5,075,109.

Such compositions may also comprise buffers (*e.g.*, neutral buffered saline or phosphate buffered saline), carbohydrates (*e.g.*, glucose, mannose, sucrose or dextrans), mannitol, proteins, polypeptides or amino acids such as glycine, antioxidants, chelating agents such as EDTA or glutathione, adjuvants (*e.g.*, aluminum hydroxide) and/or preservatives. Alternatively, compositions of the present invention may be formulated as a lyophilizate. Compounds may also be encapsulated within liposomes using well known technology.

Any of a variety of non-specific immune response enhancers may be employed in the vaccines of this invention. For example, an adjuvant may be included. Most adjuvants contain a substance designed to protect the antigen from rapid catabolism, such as aluminum hydroxide or mineral oil, and a stimulator of immune

responses, such as lipid A, *Bortadella pertussis* or *Mycobacterium tuberculosis* derived proteins. Suitable adjuvants are commercially available as, for example, Freund's Incomplete Adjuvant and Complete Adjuvant (Difco Laboratories, Detroit, MI), Merck Adjuvant 65 (Merck and Company, Inc., Rahway, NJ), alum, biodegradable

5   microspheres, monophosphoryl lipid A and quil A. Cytokines, such as GM-CSF or interleukin-2, -7, or -12, may also be used as adjuvants.

Within the vaccines provided herein, the adjuvant composition is preferably designed to induce an immune response predominantly of the Th1 type. High levels of Th1-type cytokines (*e.g.*, IFN-γ, IL-2 and IL-12) tend to favor the

10   induction of cell mediated immune responses to an administered antigen. In contrast, high levels of Th2-type cytokines (*e.g.*, IL-4, IL-5, IL-6, IL-10 and TNF-β) tend to favor the induction of humoral immune responses. Following application of a vaccine as provided herein, a patient will support an immune response that includes Th1- and Th2-type responses.   Within a preferred embodiment, in which a response is

15   predominantly Th1-type, the level of Th1-type cytokines will increase to a greater extent than the level of Th2-type cytokines. The levels of these cytokines may be readily assessed using standard assays. For a review of the families of cytokines, see Mosmann and Coffman, *Ann. Rev. Immunol.* 7:145-173, 1989.

Preferred adjuvants for use in eliciting a predominantly Th1-type

20   response include, for example, a combination of monophosphoryl lipid A, preferably 3-de-O-acylated monophosphoryl lipid A (3D-MPL), together with an aluminum salt. MPL adjuvants are available from Ribi ImmunoChem Research Inc. (Hamilton, MT; *see* US Patent Nos. 4,436,727; 4,877,611; 4,866,034 and 4,912,094). Also preferred is AS-2 (SmithKline Beecham). CpG-containing oligonucleotides (in which the CpG

25   dinucleotide is unmethylated) also induce a predominantly Th1 response. Such oligonucleotides are well known and are described, for example, in WO 96/02555. Another preferred adjuvant is a saponin, preferably QS21, which may be used alone or in combination with other adjuvants. For example, an enhanced system involves the combination of a monophosphoryl lipid A and saponin derivative, such as the

30   combination of QS21 and 3D-MPL as described in WO 94/00153, or a less reactogenic composition where the QS21 is quenched with cholesterol, as described in WO

96/33739. Other preferred formulations comprises an oil-in-water emulsion and tocopherol. A particularly potent adjuvant formulation involving QS21, 3D-MPL and tocopherol in an oil-in-water emulsion is described in WO 95/17210. Any vaccine provided herein may be prepared using well known methods that result in a combination of antigen, immune response enhancer and a suitable carrier or excipient.

The compositions described herein may be administered as part of a sustained release formulation (i.e., a formulation such as a capsule or sponge that effects a slow release of compound following administration). Such formulations may generally be prepared using well known technology and administered by, for example, oral, rectal or subcutaneous implantation, or by implantation at the desired target site. Sustained-release formulations may contain a polypeptide, polynucleotide or antibody dispersed in a carrier matrix and/or contained within a reservoir surrounded by a rate controlling membrane. Carriers for use within such formulations are biocompatible, and may also be biodegradable; preferably the formulation provides a relatively constant level of active component release. The amount of active compound contained within a sustained release formulation depends upon the site of implantation, the rate and expected duration of release and the nature of the condition to be treated or prevented.

Any of a variety of delivery vehicles may be employed within pharmaceutical compositions and vaccines to facilitate production of an antigen-specific immune response that targets tumor cells. Delivery vehicles include antigen presenting cells (APCs), such as dendritic cells, macrophages. B cells, monocytes and other cells that may be engineered to be efficient APCs. Such cells may, but need not, be genetically modified to increase the capacity for presenting the antigen, to improve activation and/or maintenance of the T cell response, to have anti-tumor effects *per se* and/or to be immunologically compatible with the receiver (i.e., matched HLA haplotype). APCs may generally be isolated from any of a variety of biological fluids and organs, including tumor and peritumoral tissues, and may be autologous, allogeneic, syngeneic or xenogeneic cells.

Certain preferred embodiments of the present invention use dendritic cells or progenitors thereof as antigen-presenting cells. Dendritic cells are highly potent

APCs (Banchereau and Steinman. *Nature* 392:245-251, 1998) and have been shown to be effective as a physiological adjuvant for eliciting prophylactic or therapeutic antitumor immunity (*see* Timmerman and Levy, *Ann. Rev. Med.* 50:507-529, 1999). In general, dendritic cells may be identified based on their typical shape (stellate *in situ*, with marked cytoplasmic processes (dendrites) visible *in vitro*) and based on the lack of differentiation markers of B cells (CD19 and CD20), T cells (CD3), monocytes (CD14) and natural killer cells (CD56), as determined using standard assays. Dendritic cells may, of course, be engineered to express specific cell-surface receptors or ligands that are not commonly found on dendritic cells *in vivo* or *ex vivo*, and such modified dendritic cells are contemplated by the present invention. As an alternative to dendritic cells, secreted vesicles antigen-loaded dendritic cells (called exosomes) may be used within a vaccine (*see* Zitvogel et al., *Nature Med.* 4:594-600, 1998).

Dendritic cells and progenitors may be obtained from peripheral blood, bone marrow, tumor-infiltrating cells, peritumoral tissues-infiltrating cells, lymph nodes, spleen, skin, umbilical cord blood or any other suitable tissue or fluid. For example, dendritic cells may be differentiated *ex vivo* by adding a combination of cytokines such as GM-CSF, IL-4, IL-13 and/or TNFα to cultures of monocytes harvested from peripheral blood. Alternatively, CD34 positive cells harvested from peripheral blood, umbilical cord blood or bone marrow may be differentiated into dendritic cells by adding to the culture medium combinations of GM-CSF, IL-3, TNFα, CD40 ligand, LPS, flt3 ligand and/or other compound(s) that induce maturation and proliferation of dendritic cells.

Dendritic cells are conveniently categorized as "immature" and "mature" cells, which allows a simple way to discriminate between two well characterized phenotypes. However, this nomenclature should not be construed to exclude all possible intermediate stages of differentiation. Immature dendritic cells are characterized as APC with a high capacity for antigen uptake and processing, which correlates with the high expression of Fcγ receptor, mannose receptor and DEC-205 marker. The mature phenotype is typically characterized by a lower expression of these markers, but a high expression of cell surface molecules responsible for T cell

activation such as class I and class II MHC, adhesion molecules (*e.g.*, CD54 and CD11) and costimulatory molecules (*e.g.*, CD40, CD80 and CD86).

APCs may generally be transfected with a polynucleotide encoding a ovarian carcinoma antigen (or portion or other variant thereof) such that the antigen, or an immunogenic portion thereof, is expressed on the cell surface. Such transfection may take place *ex vivo*, and a composition or vaccine comprising such transfected cells may then be used for therapeutic purposes, as described herein. Alternatively, a gene delivery vehicle that targets a dendritic or other antigen presenting cell may be administered to a patient, resulting in transfection that occurs *in vivo*. *In vivo* and *ex vivo* transfection of dendritic cells, for example, may generally be performed using any methods known in the art, such as those described in WO 97/24447, or the gene gun approach described by Mahvi et al., *Immunology and cell Biology 75*:456-460, 1997. Antigen loading of dendritic cells may be achieved by incubating dendritic cells or progenitor cells with the polypeptide, DNA (naked or within a plasmid vector) or RNA; or with antigen-expressing recombinant bacterium or viruses (*e.g.*, vaccinia, fowlpox, adenovirus or lentivirus vectors). Prior to loading, the polypeptide may be covalently conjugated to an immunological partner that provides T cell help (*e.g.*, a carrier molecule). Alternatively, a dendritic cell may be pulsed with a non-conjugated immunological partner, separately or in the presence of the polypeptide.

CANCER THERAPY

In further aspects of the present invention, the compositions described herein may be used for immunotherapy of cancer, such as ovarian cancer. Within such methods, pharmaceutical compositions and vaccines are typically administered to a patient. As used herein, a "patient" refers to any warm-blooded animal, preferably a human. A patient may or may not be afflicted with cancer. Accordingly, the above pharmaceutical compositions and vaccines may be used to prevent the development of a cancer or to treat a patient afflicted with a cancer. Within certain preferred embodiments, a patient is afflicted with ovarian cancer. Such cancer may be diagnosed using criteria generally accepted in the art, including the presence of a malignant tumor. Pharmaceutical compositions and vaccines may be administered either prior to or

following surgical removal of primary tumors and/or treatment such as administration of radiotherapy or conventional chemotherapeutic drugs.

Within certain embodiments, immunotherapy may be active immunotherapy, in which treatment relies on the *in vivo* stimulation of the endogenous host immune system to react against tumors with the administration of immuno response-modifying agents (such as tumor vaccines, bacterial adjuvants and/or cytokines).

Within other embodiments, immunotherapy may be passive immunotherapy, in which treatment involves the delivery of agents with established tumor-immune reactivity (such as effector cells or antibodies) that can directly or indirectly mediate antitumor effects and does not necessarily depend on an intact host immune system. Examples of effector cells include T lymphocytes (such as CD8' cytotoxic T lymphocytes and CD4' T-helper tumor-infiltrating lymphocytes), killer cells (such as Natural Killer cells and lymphokine-activated killer cells), B cells and antigen-presenting cells (such as dendritic cells and macrophages) expressing a polypeptide provided herein. T cell receptors and antibody receptors specific for the polypeptides recited herein may be cloned, expressed and transferred into other vectors or effector cells for adoptive immunotherapy. The polypeptides provided herein may also be used to generate antibodies or anti-idiotypic antibodies (as described above and in U.S. Patent No. 4,918,164) for passive immunotherapy.

Effector cells may generally be obtained in sufficient quantities for adoptive immunotherapy by growth *in vitro*, as described herein. Culture conditions for expanding single antigen-specific effector cells to several billion in number with retention of antigen recognition *in vivo* are well known in the art. Such *in vitro* culture conditions typically use intermittent stimulation with antigen, often in the presence of cytokines (such as IL-2) and non-dividing feeder cells. As noted above, immunoreactive polypeptides as provided herein may be used to rapidly expand antigen-specific T cell cultures in order to generate a sufficient number of cells for immunotherapy. In particular, antigen-presenting cells, such as dendritic, macrophage or B cells, may be pulsed with immunoreactive polypeptides or transfected with one or more polynucleotides using standard techniques well known in the art. For example,

antigen-presenting cells can be transfected with a polynucleotide having a promoter appropriate for increasing expression in a recombinant virus or other expression system. Cultured effector cells for use in therapy must be able to grow and distribute widely, and to survive long term *in vivo*. Studies have shown that cultured effector cells can be

5   induced to grow in vivo and to survive long term in substantial numbers by repeated stimulation with antigen supplemented with IL-2 (*see*, for example, Cheever et al., *Immunological Reviews 157*:177, 1997).

Alternatively, a vector expressing a polypeptide recited herein may be introduced into stem cells taken from a patient and clonally propagated *in vitro* for

10   autologous transplant back into the same patient.

Routes and frequency of administration, as well as dosage, will vary from individual to individual, and may be readily established using standard techniques. In general, the pharmaceutical compositions and vaccines may be administered by injection (*e.g.*, intracutaneous, intramuscular, intravenous or subcutaneous), intranasally

15   (*e.g.*, by aspiration), orally or in the bed of a resected tumor. Preferably, between 1 and 10 doses may be administered over a 52 week period. Preferably, 6 doses are administered, at intervals of 1 month, and booster vaccinations may be given periodically thereafter. Alternate protocols may be appropriate for individual patients. A suitable dose is an amount of a compound that, when administered as described

20   above, is capable of promoting an anti-tumor immune response. and is at least 10-50% above the basal (*i.e.*, untreated) level.. Such response can be monitored by measuring the anti-tumor antibodies in a patient or by vaccine-dependent generation of cytolytic effector cells capable of killing the patient's tumor cells *in vitro*. Such vaccines should also be capable of causing an immune response that leads to an improved clinical

25   outcome (*e.g.*, more frequent remissions, complete or partial or longer disease-free survival) in vaccinated patients as compared to non-vaccinated patients. In general, for pharmaceutical compositions and vaccines comprising one or more polypeptides, the amount of each polypeptide present in a dose ranges from about 100 μg to 5 mg per kg of host. Suitable dose sizes will vary with the size of the patient, but will typically

30   range from about 0.1 mL to about 5 mL.

In general, an appropriate dosage and treatment regimen provides the active compound(s) in an amount sufficient to provide therapeutic and/or prophylactic benefit. Such a response can be monitored by establishing an improved clinical outcome (e.g., more frequent remissions, complete or partial, or longer disease-free

5   survival) in treated patients as compared to non-treated patients. Increases in preexisting immune responses to an ovarian carcinoma antigen generally correlate with an improved clinical outcome. Such immune responses may generally be evaluated using standard proliferation, cytotoxicity or cytokine assays, which may be performed using samples obtained from a patient before and after treatment.

10

SCREENS FOR IDENTIFYING SECRETED OVARIAN CARCINOMA ANTIGENS

The present invention provides methods for identifying secreted tumor antigens. Within such methods, tumors are implanted into immunodeficient animals such as SCID mice and maintained for a time sufficient to permit secretion of tumor

15   antigens into serum. In general, tumors may be implanted subcutaneously or within the gonadal fat pad of an immunodeficient animal and maintained for 1-9 months, preferably 1-4 months. Implantation may generally be performed as described in WO 97/18300. The serum containing secreted antigens is then used to prepare antisera in immunocompetent mice, using standard techniques and as described herein. Briefly,

20   50-100 μL of sera (pooled from three sets of immunodeficient mice, each set bearing a different SCID-derived human ovarian tumor) may be mixed 1:1 (vol:vol) with an appropriate adjuvant, such as RIBI-MPL or MPL + TDM (Sigma Chemical Co., St. Louis, MO) and injected intraperitoneally into syngeneic immunocompetent animals at monthly intervals for a total of 5 months. Antisera from animals immunized in such a

25   manner may be obtained by drawing blood after the third, fourth and fifth immunizations. The resulting antiserum is generally pre-cleared of E. coli and phage antigens and used (generally following dilution, such as 1:200) in a serological expression screen.

The library is typically an expression library containing cDNAs from one

30   or more tumors of the type that was implanted into SCID mice. This expression library may be prepared in any suitable vector, such as λ-screen (Novagen). cDNAs that

encode a polypeptide that reacts with the antiserum may be identified using standard techniques, and sequenced. Such cDNA molecules may be further characterized to evaluate expression in tumor and normal tissue, and to evaluate antigen secretion in patients.

5   The methods provided herein have advantages over other methods for tumor antigen discovery. In particular, all antigens identified by such methods should be secreted or released through necrosis of the tumor cells. Such antigens may be present on the surface of tumor cells for an amount of time sufficient to permit targeting and killing by the immune system, following vaccination.

10

METHODS FOR DETECTING CANCER

In general, a cancer may be detected in a patient based on the presence of one or more ovarian carcinoma proteins and/or polynucleotides encoding such proteins in a biological sample (such as blood, sera, urine and/or tumor biopsies) obtained from
15   the patient. In other words, such proteins may be used as markers to indicate the presence or absence of a cancer such as ovarian cancer. In addition, such proteins may be useful for the detection of other cancers. The binding agents provided herein generally permit detection of the level of protein that binds to the agent in the biological sample. Polynucleotide primers and probes may be used to detect the level of mRNA
20   encoding a tumor protein, which is also indicative of the presence or absence of a cancer. In general, an ovarian carcinoma-associated sequence should be present at a level that is at least three fold higher in tumor tissue than in normal tissue

There are a variety of assay formats known to those of ordinary skill in the art for using a binding agent to detect polypeptide markers in a sample. *See, e.g.,*
25   Harlow and Lane, *Antibodies: A Laboratory Manual,* Cold Spring Harbor Laboratory, 1988. In general, the presence or absence of a cancer in a patient may be determined by (a) contacting a biological sample obtained from a patient with a binding agent; (b) detecting in the sample a level of polypeptide that binds to the binding agent; and (c) comparing the level of polypeptide with a predetermined cut-off value.

30   In a preferred embodiment, the assay involves the use of binding agent immobilized on a solid support to bind to and remove the polypeptide from the

remainder of the sample. The bound polypeptide may then be detected using a detection reagent that contains a reporter group and specifically binds to the binding agent/polypeptide complex. Such detection reagents may comprise, for example, a binding agent that specifically binds to the polypeptide or an antibody or other agent

5 that specifically binds to the binding agent, such as an anti-immunoglobulin, protein G, protein A or a lectin. Alternatively, a competitive assay may be utilized, in which a polypeptide is labeled with a reporter group and allowed to bind to the immobilized binding agent after incubation of the binding agent with the sample. The extent to which components of the sample inhibit the binding of the labeled polypeptide to the

10 binding agent is indicative of the reactivity of the sample with the immobilized binding agent. Suitable polypeptides for use within such assays include full length ovarian carcinoma proteins and portions thereof to which the binding agent binds, as described above.

The solid support may be any material known to those of ordinary skill

15 in the art to which the tumor protein may be attached. For example, the solid support may be a test well in a microtiter plate or a nitrocellulose or other suitable membrane. Alternatively, the support may be a bead or disc, such as glass, fiberglass, latex or a plastic material such as polystyrene or polyvinylchloride. The support may also be a magnetic particle or a fiber optic sensor, such as those disclosed, for example, in U.S.

20 Patent No. 5,359,681. The binding agent may be immobilized on the solid support using a variety of techniques known to those of skill in the art, which are amply described in the patent and scientific literature. In the context of the present invention, the term "immobilization" refers to both noncovalent association, such as adsorption, and covalent attachment (which may be a direct linkage between the agent and

25 functional groups on the support or may be a linkage by way of a cross-linking agent). Immobilization by adsorption to a well in a microtiter plate or to a membrane is preferred. In such cases, adsorption may be achieved by contacting the binding agent, in a suitable buffer, with the solid support for a suitable amount of time. The contact time varies with temperature, but is typically between about 1 hour and about 1 day. In

30 general, contacting a well of a plastic microtiter plate (such as polystyrene or polyvinylchloride) with an amount of binding agent ranging from about 10 ng to about

10 μg, and preferably about 100 ng to about 1 μg, is sufficient to immobilize an adequate amount of binding agent.

Covalent attachment of binding agent to a solid support may generally be achieved by first reacting the support with a bifunctional reagent that will react with

5   both the support and a functional group, such as a hydroxyl or amino group, on the binding agent. For example, the binding agent may be covalently attached to supports having an appropriate polymer coating using benzoquinone or by condensation of an aldehyde group on the support with an amine and an active hydrogen on the binding partner (see, e.g., Pierce Immunotechnology Catalog and Handbook, 1991, at

10 A12-A13).

In certain embodiments, the assay is a two-antibody sandwich assay. This assay may be performed by first contacting an antibody that has been immobilized on a solid support, commonly the well of a microtiter plate, with the sample, such that polypeptides within the sample are allowed to bind to the immobilized antibody.

15 Unbound sample is then removed from the immobilized polypeptide-antibody complexes and a detection reagent (preferably a second antibody capable of binding to a different site on the polypeptide) containing a reporter group is added. The amount of detection reagent that remains bound to the solid support is then determined using a method appropriate for the specific reporter group.

20   More specifically, once the antibody is immobilized on the support as described above, the remaining protein binding sites on the support are typically blocked. Any suitable blocking agent known to those of ordinary skill in the art, such as bovine serum albumin or Tween 20™ (Sigma Chemical Co., St. Louis, MO). The immobilized antibody is then incubated with the sample, and polypeptide is allowed to

25 bind to the antibody. The sample may be diluted with a suitable diluent, such as phosphate-buffered saline (PBS) prior to incubation. In general, an appropriate contact time (i.e., incubation time) is a period of time that is sufficient to detect the presence of polypeptide within a sample obtained from an individual with ovarian cancer. Preferably, the contact time is sufficient to achieve a level of binding that is at least

30 about 95% of that achieved at equilibrium between bound and unbound polypeptide. Those of ordinary skill in the art will recognize that the time necessary to achieve

equilibrium may be readily determined by assaying the level of binding that occurs over a period of time. At room temperature, an incubation time of about 30 minutes is generally sufficient.

Unbound sample may then be removed by washing the solid support with an appropriate buffer, such as PBS containing 0.1% Tween 20™. The second antibody, which contains a reporter group, may then be added to the solid support. Preferred reporter groups include those groups recited above.

The detection reagent is then incubated with the immobilized antibody-polypeptide complex for an amount of time sufficient to detect the bound polypeptide. An appropriate amount of time may generally be determined by assaying the level of binding that occurs over a period of time. Unbound detection reagent is then removed and bound detection reagent is detected using the reporter group. The method employed for detecting the reporter group depends upon the nature of the reporter group. For radioactive groups, scintillation counting or autoradiographic methods are generally appropriate. Spectroscopic methods may be used to detect dyes, luminescent groups and fluorescent groups. Biotin may be detected using avidin, coupled to a different reporter group (commonly a radioactive or fluorescent group or an enzyme). Enzyme reporter groups may generally be detected by the addition of substrate (generally for a specific period of time), followed by spectroscopic or other analysis of the reaction products.

To determine the presence or absence of a cancer, such as ovarian cancer, the signal detected from the reporter group that remains bound to the solid support is generally compared to a signal that corresponds to a predetermined cut-off value. In one preferred embodiment, the cut-off value for the detection of a cancer is the average mean signal obtained when the immobilized antibody is incubated with samples from patients without the cancer. In general, a sample generating a signal that is three standard deviations above the predetermined cut-off value is considered positive for the cancer. In an alternate preferred embodiment, the cut-off value is determined using a Receiver Operator Curve, according to the method of Sackett et al., *Clinical Epidemiology: A Basic Science for Clinical Medicine*, Little Brown and Co., 1985, p. 106-7. Briefly, in this embodiment, the cut-off value may be determined from a plot

of pairs of true positive rates (*i.e.*, sensitivity) and false positive rates (100%-specificity) that correspond to each possible cut-off value for the diagnostic test result. The cut-off value on the plot that is the closest to the upper left-hand corner (*i.e.*, the value that encloses the largest area) is the most accurate cut-off value, and a sample generating a signal that is higher than the cut-off value determined by this method may be considered positive. Alternatively, the cut-off value may be shifted to the left along the plot, to minimize the false positive rate, or to the right, to minimize the false negative rate. In general, a sample generating a signal that is higher than the cut-off value determined by this method is considered positive for a cancer.

In a related embodiment, the assay is performed in a flow-through or strip test format, wherein the binding agent is immobilized on a membrane, such as nitrocellulose. In the flow-through test, polypeptides within the sample bind to the immobilized binding agent as the sample passes through the membrane. A second, labeled binding agent then binds to the binding agent-polypeptide complex as a solution containing the second binding agent flows through the membrane. The detection of bound second binding agent may then be performed as described above. In the strip test format, one end of the membrane to which binding agent is bound is immersed in a solution containing the sample. The sample migrates along the membrane through a region containing second binding agent and to the area of immobilized binding agent. Concentration of second binding agent at the area of immobilized antibody indicates the presence of a cancer. Typically, the concentration of second binding agent at that site generates a pattern, such as a line, that can be read visually. The absence of such a pattern indicates a negative result. In general, the amount of binding agent immobilized on the membrane is selected to generate a visually discernible pattern when the biological sample contains a level of polypeptide that would be sufficient to generate a positive signal in the two-antibody sandwich assay, in the format discussed above. Preferred binding agents for use in such assays are antibodies and antigen-binding fragments thereof. Preferably, the amount of antibody immobilized on the membrane ranges from about 25 ng to about 1 μg, and more preferably from about 50 ng to about 500 ng. Such tests can typically be performed with a very small amount of biological sample.

Of course. numerous other assay protocols exist that are suitable for use with the tumor proteins or binding agents of the present invention. The above descriptions are intended to be exemplary only. For example, it will be apparent to those of ordinary skill in the art that the above protocols may be readily modified to use ovarian carcinoma polypeptides to detect antibodies that bind to such polypeptides in a biological sample. The detection of such ovarian carcinoma protein specific antibodies may correlate with the presence of a cancer.

A cancer may also, or alternatively, be detected based on the presence of T cells that specifically react with an ovarian carcinoma protein in a biological sample. Within certain methods, a biological sample comprising CD4$^-$ and/or CD8$^+$ T cells isolated from a patient is incubated with an ovarian carcinoma protein, a polynucleotide encoding such a polypeptide and/or an APC that expresses at least an immunogenic portion of such a polypeptide. and the presence or absence of specific activation of the T cells is detected. Suitable biological samples include, but are not limited to, isolated T cells. For example, T cells may be isolated from a patient by routine techniques (such as by Ficoll/Hypaque density gradient centrifugation of peripheral blood lymphocytes). T cells may be incubated *in vitro* for 2-9 days (typically 4 days) at 37°C with an ovarian carcinoma protein (*e.g.*, 5 - 25 µg/ml). It may be desirable to incubate another aliquot of a T cell sample in the absence of ovarian carcinoma protein to serve as a control. For CD4$^+$ T cells, activation is preferably detected by evaluating proliferation of the T cells. For CD8$^-$ T cells. activation is preferably detected by evaluating cytolytic activity. A level of proliferation that is at least two fold greater and/or a level of cytolytic activity that is at least 20% greater than in disease-free patients indicates the presence of a cancer in the patient.

As noted above, a cancer may also, or alternatively, be detected based on the level of mRNA encoding an ovarian carcinoma protein in a biological sample. For example, at least two oligonucleotide primers may be employed in a polymerase chain reaction (PCR) based assay to amplify a portion of an ovarian carcinoma protein cDNA derived from a biological sample, wherein at least one of the oligonucleotide primers is specific for (*i.e.*, hybridizes to) a polynucleotide encoding the ovarian carcinoma protein. The amplified cDNA is then separated and detected using techniques well

known in the art. such as gel electrophoresis. Similarly, oligonucleotide probes that specifically hybridize to a polynucleotide encoding an ovarian carcinoma protein may be used in a hybridization assay to detect the presence of polynucleotide encoding the tumor protein in a biological sample.

5   To permit hybridization under assay conditions, oligonucleotide primers and probes should comprise an oligonucleotide sequence that has at least about 60%, preferably at least about 75% and more preferably at least about 90%, identity to a portion of a polynucleotide encoding an ovarian carcinoma protein that is at least 10 nucleotides, and preferably at least 20 nucleotides, in length. Preferably,
10   oligonucleotide primers and/or probes hybridize to a polynucleotide encoding a polypeptide described herein under moderately stringent conditions. as defined above. Oligonucleotide primers and/or probes which may be usefully employed in the diagnostic methods described herein preferably are at least 10-40 nucleotides in length. In a preferred embodiment, the oligonucleotide primers comprise at least 10 contiguous
15   nucleotides, more preferably at least 15 contiguous nucleotides, of a DNA molecule having a sequence provided herein. Techniques for both PCR based assays and hybridization assays are well known in the art (see, for example, Mullis et al., *Cold Spring Harbor Symp. Quant. Biol.*, *51*:263, 1987; Erlich ed., *PCR Technology*, Stockton Press, NY, 1989).

20   One preferred assay employs RT-PCR, in which PCR is applied in conjunction with reverse transcription. Typically, RNA is extracted from a biological sample such as a biopsy tissue and is reverse transcribed to produce cDNA molecules. PCR amplification using at least one specific primer generates a cDNA molecule, which may be separated and visualized using, for example, gel electrophoresis. Amplification
25   may be performed on biological samples taken from a test patient and from an individual who is not afflicted with a cancer. The amplification reaction may be performed on several dilutions of cDNA spanning two orders of magnitude. A two-fold or greater increase in expression in several dilutions of the test patient sample as compared to the same dilutions of the non-cancerous sample is typically considered
30   positive.

In another embodiment. ovarian carcinoma proteins and polynucleotides encoding such proteins may be used as markers for monitoring the progression of cancer. In this embodiment. assays as described above for the diagnosis of a cancer may be performed over time, and the change in the level of reactive polypeptide(s) evaluated. For example, the assays may be performed every 24-72 hours for a period of 6 months to 1 year, and thereafter performed as needed. In general. a cancer is progressing in those patients in whom the level of polypeptide detected by the binding agent increases over time. In contrast, the cancer is not progressing when the level of reactive polypeptide either remains constant or decreases with time.

Certain *in vivo* diagnostic assays may be performed directly on a tumor. One such assay involves contacting tumor cells with a binding agent. The bound binding agent may then be detected directly or indirectly via a reporter group. Such binding agents may also be used in histological applications. Alternatively, polynucleotide probes may be used within such applications.

As noted above, to improve sensitivity, multiple ovarian carcinoma protein markers may be assayed within a given sample. It will be apparent that binding agents specific for different proteins provided herein may be combined within a single assay. Further, multiple primers or probes may be used concurrently. The selection of tumor protein markers may be based on routine experiments to determine combinations that results in optimal sensitivity. In addition. or alternatively, assays for tumor proteins provided herein may be combined with assays for other known tumor antigens.

DIAGNOSTIC KITS

The present invention further provides kits for use within any of the above diagnostic methods. Such kits typically comprise two or more components necessary for performing a diagnostic assay. Components may be compounds, reagents, containers and/or equipment. For example, one container within a kit may contain a monoclonal antibody or fragment thereof that specifically binds to an ovarian carcinoma protein. Such antibodies or fragments may be provided attached to a support material. as described above. One or more additional containers may enclose elements, such as reagents or buffers. to be used in the assay. Such kits may also, or alternatively,

contain a detection reagent as described above that contains a reporter group suitable for direct or indirect detection of antibody binding.

Alternatively, a kit may be designed to detect the level of mRNA encoding an ovarian carcinoma protein in a biological sample. Such kits generally comprise at least one oligonucleotide probe or primer, as described above, that hybridizes to a polynucleotide encoding an ovarian carcinoma protein. Such an oligonucleotide may be used, for example, within a PCR or hybridization assay. Additional components that may be present within such kits include a second oligonucleotide and/or a diagnostic reagent or container to facilitate the detection of a polynucleotide encoding an ovarian carcinoma protein.

The following Examples are offered by way of illustration and not by way of limitation.

EXAMPLES

Example 1

Identification of Representative Ovarian Carcinoma Protein cDNAs

This Example illustrates the identification of cDNA molecules encoding ovarian carcinoma proteins.

Anti-SCID mouse sera (generated against sera from SCID mice carrying late passage ovarian carcinoma) was pre-cleared of E. coli and phage antigens and used at a 1:200 dilution in a serological expression screen. The library screened was made from a SCID-derived human ovarian tumor (OV9334) using a directional RH oligo(dT) priming cDNA library construction kit and the λScreen vector (Novagen). A bacteriophage lambda screen was employed. Approximately 400,000 pfu of the amplified OV9334 library were screened.

196 positive clones were isolated. Certain sequences that appear to be novel are provided in Figures 1A-1S and SEQ ID NOs:1 to 71. Three complete insert sequences are shown in Figures 2A-2C (SEQ ID NOs:72 to 74). Other clones having known sequences are presented in Figures 15A-15EEE (SEQ ID NOs:82 to 310). Database searches identified the following sequences that were substantially identical to the sequences presented in Figures 15A-15EEE.

These clones were further characterized using microarray technology to determine mRNA expression levels in a variety of tumor and normal tissues. Such analyses were performed using a Synteni (Palo Alto, CA) microarray, according to the manufacturer's instructions. PCR amplification products were arrayed on slides, with each product occupying a unique location in the array. mRNA was extracted from the tissue sample to be tested, reverse transcribed and fluorescent-labeled cDNA probes were generated. The microarrays were probed with the labeled cDNA probes and the slides were scanned to measure fluorescence intensity. Data was analyzed using Synteni's provided GEMtools software. The results for one clone (13695, also referred to as O8E) are shown in Figure 3.

Example 2

Identification of Ovarian Carcinoma cDNAs using Microarray Technology

This Example illustrates the identification of ovarian carcinoma polynucleotides by PCR subtraction and microarray analysis. Microarrays of cDNAs were analyzed for ovarian tumor-specific expression using a Synteni (Palo Alto, CA) microarray, according to the manufacturer's instructions (and essentially as described by Schena et al., *Proc. Natl. Acad. Sci. USA 93*:10614-10619, 1996 and Heller et al., *Proc. Natl. Acad. Sci. USA 94*:2150-2155, 1997).

A PCR subtraction was performed using a tester comprising cDNA of four ovarian tumors (three of which were metastatic tumors) and a driver of cDNA form five normal tissues (adrenal gland, lung, pancreas, spleen and brain). cDNA fragments recovered from this subtraction were subjected to DNA microarray analysis where the fragments were PCR amplified, adhered to chips and hybridized with fluorescently labeled probes derived from mRNAs of human ovarian tumors and a variety of normal human tissues. In this analysis, the slides were scanned and the fluorescence intensity was measured, and the data were analyzed using Synteni's GEMtools software. In general, sequences showing at least a 5-fold increase in expression in tumor cells (relative to normal cells) were considered ovarian tumor antigens. The fluorescent results were analyzed and clones that displayed increased expression in ovarian tumors were further characterized by DNA sequencing and database searches to determine the novelty of the sequences.

Using such assays, an ovarian tumor antigen was identified that is a splice fusion between the human T-cell leukemia virus type I oncoprotein TAX (*see* Jin et al., *Cell 93*:81-91, 1998) and an extracellular matrix protein called osteonectin. A splice junction sequence exists at the fusion point. The sequence of this clone is presented in Figure 4 and SEQ ID NO:75. Osteonectin, unspliced and unaltered, was also identified from such assays independently.

Further clones identified by this method are referred to herein as 3f, 6b, 8e, 8h, 12c and 12h. Sequences of these clones are shown in Figures 5 to 9 and SEQ ID NOs:76 to 81. Microarray analyses were performed as described above, and are presented in Figures 10 to 14. A full length sequence encompassing clones 3f, 6b, 8e and 12h was obtained by screening an ovarian tumor (SCID-derived) cDNA library. This 2996 base pair sequence (designated O772P) is presented in SEQ ID NO:311, and the encoded 914 amino acid protein sequence is shown in SEQ ID NO:312. PSORT analysis indicates a Type 1a transmembrane protein localized to the plasma membrane.

In addition to certain of the sequences described above, this screen identified the following sequences:

Sequence	Comments
OV4vG11 (SEQ ID NO:313)	human clone 1119D9 on chromosome 20p12
OV4vB11 (SEQ ID NO:314)	human UWGC:y14c094 from chromosome 6p21
OV4vD9 (SEQ ID NO:315)	human clone 1049G16 chromosome 20q12-13.2
OV4vD5 (SEQ ID NO:316)	human KIAA0014 gene
OV4vC2 (SEQ ID NO:317)	human KIAA0084 gene
OV4vF3 (SEQ ID NO:318)	human chromosome 19 cosmid R31167
OV4VC1 (SEQ ID NO:319)	novel
OV4vH3 (SEQ ID NO:320)	novel
OV4vD2 (SEQ ID NO:321)	novel
O815P (SEQ ID NO:322)	novel
OV4vC12 (SEQ ID NO:323)	novel
OV4vA4 (SEQ ID NO:324)	novel
OV4vA3 (SEQ ID NO:325)	novel
OV4v2A5 (SEQ ID NO:326)	novel
O819P (SEQ ID NO:327)	novel
O818P (SEQ ID NO:328)	novel
O817P (SEQ ID NO:329)	novel
O816P (SEQ ID NO:330)	novel
Ov4vC5 (SEQ ID NO:331)	novel

Sequence	Comments
21721 (SEQ ID NO:332)	human lumican
21719 (SEQ ID NO:333)	human retinoic acid-binding protein II
21717 (SEQ ID NO:334)	human26S proteasome ATPase subunit
21654 (SEQ ID NO:335)	human copine I
21627 (SEQ ID NO:336)	human neuron specific gamma-2 enolase
21623 (SEQ ID NO:337)	human geranylgeranyl transferase II
21621 (SEQ ID NO:338)	human cyclin-dependent protein kinase
21616 (SEQ ID NO:339)	human prepro-megakaryocyte potentiating factor
21612 (SEQ ID NO:340)	human UPH1
21558 (SEQ ID NO:341)	human RalGDS-like 2 (RGL2)
21555 (SEQ ID NO:342)	human autoantigen P542
21548 (SEQ ID NO:343)	human actin-related protein (ARP2)
21462 (SEQ ID NO:344)	human huntingtin interacting protein
21441 (SEQ ID NO:345)	human 90K product (tumor associated antigen)
21439 (SEQ ID NO:346)	human guanine nucleotide regulator protein (tim1)
21438 (SEQ ID NO:347)	human Ku autoimmune (p70/p80) antigen
21237 (SEQ ID NO:348)	human S-laminin
21436 (SEQ ID NO:349)	human ribophorin I
21435 (SEQ ID NO:350)	human cytoplasmic chaperonin hTRiC5
21425 (SEQ ID NO:351)	humanEMX2
21423 (SEQ ID NO:352)	human p87/p89 gene
21419 (SEQ ID NO:353)	human HPBRII-7
21252 (SEQ ID NO:354)	human TI-227H
21251 (SEQ ID NO:355)	human cullin I
21247 (SEQ ID NO:356)	kunitz type protease inhibitor (KOP)
21244-1 (SEQ ID NO:357)	human protein tyrosine phosphatase receptor F (PTPRF)
21718 (SEQ ID NO:358)	human LTR repeat
OV2-90 (SEQ ID NO:359)	novel

Sequence	Comments
Human zinc finger (SEQ ID NO:360)	
Human polyA binding protein (SEQ ID NO:361)	
Human pleitrophin (SEQ ID NO:362)	
Human PAC clone 278C19 (SEQ ID NO:363)	
Human LLRep3 (SEQ ID NO:364)	
Human Kunitz type protease inhib (SEQ ID NO:365)	
Human KIAA0106 gene (SEQ ID NO:366)	
Human keratin (SEQ ID NO:367)	
Human HIV-1TAR (SEQ ID NO:368)	
Human glia derived nexin (SEQ ID NO:369)	
Human fibronectin (SEQ ID NO:370)	
Human ECMproBM40 (SEQ ID NO:371)	
Human collagen (SEQ ID NO:372)	
Human alpha enolase (SEQ ID NO:373)	
Human aldolase (SEQ ID NO:374)	
Human transf growth factor BIG H3 (SEQ ID NO:375)	
Human SPARC osteonectin (SEQ ID NO:376)	
Human SLP1 leucocyte protease (SEQ ID NO:377)	
Human mitochondrial ATP synth (SEQ ID NO:378)	
Human DNA seq clone 461P17 (SEQ ID NO:379)	
Human dbpB pro Y box (SEQ ID NO:380)	
Human 40 kDa keratin (SEQ ID NO:381)	
Human arginosuccinate synth (SEQ ID NO:382)	
Human acidic ribosomal phosphoprotein (SEQ ID NO:383)	
Human colon carcinoma laminin binding pro (SEQ ID NO:384)	

This screen further identified multiple forms of the clone O772P, referred to herein as 21013. 21003 and 21008. PSORT analysis indicates that 21003 (SEQ ID NO:386; translated as SEQ ID NO:389) and 21008 (SEQ ID NO:387; translated as SEQ ID NO:390) represent Type 1a transmembrane protein forms of

O772P. 21013 (SEQ ID NO:385; translated as SEQ ID NO:388) appears to be a truncated form of the protein and is predicted by PSORT analysis to be a secreted protein.

Additional sequence analysis resulted in a full length clone for O8E (2627 bp, which agrees with the message size observed by Northern analysis; SEQ ID NO:391). This nucleotide sequence was obtained as follows: the original O8E sequence (OrigO8Econs) was found to overlap by 33 nucleotides with a sequence from an EST clone (IMAGE#1987589). This clone provided 1042 additional nucleotides upstream of the original O8E sequence. The link between the EST and O8E was confirmed by sequencing multiple PCR fragments generated from an ovary primary tumor library using primers to the unique EST and the O8E sequence (ESTxO8EPCR). Full length status was further indicated when anchored PCR from the ovary tumor library gave several clones (AnchoredPCR cons) that all terminated upstream of the putative start methionine, but failed to yield any additional sequence information. Figure 16 presents a diagram that illustrates the location of each partial sequence within the full length O8E sequence.

Two protein sequences may be translated from the full length O8E. For "a" (SEQ ID NO:393) begins with a putative start methionine. A second form "b" (SEQ ID NO:392) includes 27 additional upstream residues to the 5' end of the nucleotide sequence.

From the foregoing it will be appreciated that, although specific embodiments of the invention have been described herein for purposes of illustration, various modifications may be made without deviating from the spirit and scope of the invention. Accordingly, the invention is not limited except as by the appended claims.

SUMMARY OF SEQUENCE LISTING

SEQ ID NOs:1-71 are ovarian carcinoma antigen polynucleotides shown in Figures 1A-1S.

SEQ ID NOs:72-74 are ovarian carcinoma antigen polynucleotides shown in Figures 2A-2C.

SEQ ID NO:75 is the ovarian carcinoma polynucleotide 3g (Figure 4).

SEQ ID NO:76 is the ovarian carcinoma polynucleotide 3f (Figure 5).

SEQ ID NO:77 is the ovarian carcinoma polynucleotide 6b (Figure 6).

SEQ ID NO:78 is the ovarian carcinoma polynucleotide 8e (Figure 7A).

SEQ ID NO:79 is the ovarian carcinoma polynucleotide 8h (Figure 7B).

5   SEQ ID NO:80 is the ovarian carcinoma polynucleotide 12e (Figure 8).

SEQ ID NO:81 is the ovarian carcinoma polynucleotide 12h (Figure 9).

SEQ ID NOs:82-310 are ovarian carcinoma antigen polynucleotides shown in Figures 15A-15EEE.

SEQ ID NO:311 is a full length sequence of ovarian carcinoma

10   polynucleotide O772P.

SEQ ID NO:312 is the O772P amino acid sequence.

SEQ ID NOs:313-384 are ovarian carcinoma antigen polynucleotides.

SEQ ID NOs:385-390 present sequences of O772P forms.

SEQ ID NO:391 is a full length sequence of ovarian carcinoma

15   polynucleotide O8E.

SEQ ID NOs:392-393 are protein sequences encoded by O8E.

CLAIMS

1.   An isolated polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein, or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(a)   polynucleotides recited in any one of SEQ ID NOs:1-81, 313-331, 359, 366, 379, 385-387 or 391; and

(b)   complements of the foregoing polynucleotides.

2.   A polypeptide according to claim 1, wherein the polypeptide comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(a)   polynucleotides recited in any one of 1-81, 313-331, 359, 366, 379, 385-387 or 391; and

(b)   complements of such polynucleotides.

3.   An isolated polynucleotide encoding at least 5 amino acid residues of a polypeptide according to claim polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein, or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(a)   polynucleotides recited in any one of SEQ ID NOs:1-81, 319-331, 359, 385-387 or 391; and

(b)   complements of the foregoing polynucleotides

4.   A polynucleotide according to claim 3, wherein the polynucleotide encodes an immunogenic portion of the polypeptide.

5.   A polynucleotide according to claim 3, wherein the polynucleotide comprises a sequence recited in any one of SEQ ID NOs:1-81, 319-331, 359, 385-387, 391 or a complement of any of the foregoing sequences.

6.   An isolated polynucleotide complementary to a polynucleotide according to claim 3.

7.   An expression vector comprising a polynucleotide according to claim 3 or claim 6.

8.   A host cell transformed or transfected with an expression vector according to claim 7.

9.   A pharmaceutical composition comprising a polypeptide according to claim 1, in combination with a physiologically acceptable carrier.

10.   A pharmaceutical composition according to claim 9, wherein the polypeptide comprises an amino acid sequence encoded by a polynucleotide that comprises a sequence recited in any one of SEQ ID NOs:1-81, 313-331, 359, 366, 379, 385-387 or 391.

11.   A vaccine comprising a polypeptide according to claim 1, in combination with a non-specific immune response enhancer.

12.   A vaccine according to claim 11, wherein the polypeptide comprises an amino acid sequence encoded by a polynucleotide that comprises a sequence recited in any one of SEQ ID NOs:1-81, 313-331, 359, 366, 379, 385-387 or 391.

13.   A pharmaceutical composition comprising:

(a)   a polynucleotide encoding an ovarian carcinoma polypeptide, wherein the polypeptide comprises at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i)   polynucleotides recited in any one of SEQ ID NOs:1-81, 319-331, 359, 385-387 or 391; and

(ii)   complements of the foregoing polynucleotides; and

(b)   a physiologically acceptable carrier.

14.   A pharmaceutical composition according to claim 13. wherein the polynucleotide comprises a sequence recited in any one of SEQ ID NOs:1-81, 319-331, 359, 385-387, 391 or a complement of any of the foregoing sequences.

15.   A vaccine comprising:

(a)   a polynucleotide encoding an ovarian carcinoma polypeptide, wherein the polypeptide comprises at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i)   polynucleotides recited in any one of SEQ ID NOs:1-81, 313-331, 359, 366, 379, 385-387 or 391; and

(ii)   complements of the foregoing polynucleotides; and

16.   A vaccine according to claim 15. wherein the polynucleotide comprises a sequence recited in any one of SEQ ID NOs:1-81. 319-331, 359, 385-387 or 391.

17.   A pharmaceutical composition comprising:

(a)   an antibody that specifically binds to an ovarian carcinoma protein, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i)   polynucleotides recited in any one of SEQ ID NOs:1-81, 313-331, 359, 366, 379, 385-387 or 391; and

(ii)   complements of such polynucleotides; and

(b)   a physiologically acceptable carrier.

18.   A method for inhibiting the development of ovarian cancer in a patient, comprising administering to a patient an effective amount of an agent selected from the group consisting of:

(a)   an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i)   polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

(ii)   complements of such polynucleotides;

(b)   a polynucleotide encoding a polypeptide as recited in (a); and

(c)   an antibody that specifically binds to an ovarian carcinoma protein that comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i)   polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

(ii)   complements of such polynucleotides;

and thereby inhibiting the development of ovarian cancer in the patient.

19.   A method according to claim 18, wherein the agent is present within a pharmaceutical composition according to any one of claims 9, 13 or 17.

20.   A method according to claim 18, wherein the agent is present within a vaccine according to any one of claims 11, 15 or 18.

21.   A fusion protein comprising at least one polypeptide according to claim 1.

22.   A polynucleotide encoding a fusion protein according to claim 21.

23.   A pharmaceutical composition comprising a fusion protein according to claim 21 in combination with a physiologically acceptable carrier.

24.   A vaccine comprising a fusion protein according to claim 21 in combination with a non-specific immune response enhancer.

25.   A pharmaceutical composition comprising a polynucleotide according to claim 22 in combination with a physiologically acceptable carrier.

26.   A vaccine comprising a polynucleotide according to claim 22 in combination with a non-specific immune response enhancer.

27.   A method for inhibiting the development of ovarian cancer in a patient, comprising administering to a patient an effective amount of a pharmaceutical composition according to claim 23 or claim 25.

28.   A method for inhibiting the development of ovarian cancer in a patient, comprising administering to a patient an effective amount of a vaccine according to claim 23 or claim 26.

29.   A pharmaceutical composition, comprising:

(a)   an antigen presenting cell that expresses an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i)   polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

(ii)   complements of such polynucleotides; and

(b)   a pharmaceutically acceptable carrier or excipient.

30.   A vaccine, comprising:

(a)   an antigen presenting cell that expresses an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i)   polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

(ii)   complements of such polynucleotides; and

(b)   a non-specific immune response enhancer.

31.   A vaccine comprising:

(a)   an anti-idiotypic antibody or antigen-binding fragment thereof that is specifically bound by an antibody that specifically binds to an ovarian carcinoma protein that comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i)   polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

(ii)   complements of such polynucleotides; and

(b)   non-specific immune response enhancer.

32.   A vaccine according to claim 30 or claim 31, wherein the immune response enhancer is an adjuvant.

33.   A pharmaceutical composition, comprising:

(a)   a T cell that specifically reacts with an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i)   polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

(ii)   complements of such polynucleotides; and

(b)   a physiologically acceptable carrier.

34.   A vaccine, comprising:

(a)   a T cell that specifically reacts with an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i)   polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

(ii)   complements of such polynucleotides; and

(b)   a non-specific immune response enhancer.

35.   A method for inhibiting the development of ovarian cancer in a patient, comprising administering to the patient an effective amount of a pharmaceutical composition according to claim 29 or claim 33.

36.   A method for inhibiting the development of ovarian cancer in a patient, comprising administering to the patient an effective amount of a vaccine according to any one of claims 30, 31 or 34.

37.   A method for stimulating and/or expanding T cells, comprising contacting T cells with:

(a)   an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i)   polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

(ii)   complements of such polynucleotides;

(b)   a polynucleotide encoding such a polypeptide; and/or

(c)   an antigen presenting cell that expresses such a polypeptide under conditions and for a time sufficient to permit the stimulation and/or expansion of T cells.

38.   A method according to claim 37, wherein the T cells are cloned prior to expansion.

39.   A method for stimulating and/or expanding T cells in a mammal, comprising administering to a mammal a pharmaceutical composition comprising:

(a)   one or more of:

(i)   an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one

or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

complements of such polynucleotides;

(ii)   a polynucleotide encoding an ovarian carcinoma polypeptide;

or

(iii)   an antigen-presenting cell that expresses an ovarian carcinoma polypeptide; and

(b)   a physiologically acceptable carrier or excipient;

and thereby stimulating and/or expanding T cells in a mammal.

40.   A method for stimulating and/or expanding T cells in a mammal, comprising administering to a mammal a vaccine comprising:

(a) one or more of:

(i)   an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

complements of such polynucleotides;

(ii)   a polynucleotide encoding an ovarian carcinoma polypeptide;

or

(iii)   an antigen-presenting cell that expresses an ovarian carcinoma polypeptide; and

(b)   a non-specific immune response enhancer;

and thereby stimulating and/or expanding T cells in a mammal.

41.   A method for inhibiting the development of ovarian cancer in a patient, comprising administering to a patient T cells prepared according to the method of claim 39 or claim 40.

42.   A method for inhibiting the development of ovarian cancer in a patient, comprising the steps of:

(a)   incubating CD4$^+$ T cells isolated from a patient with one or more of:

(i)   an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

complements of such polynucleotides;

(ii)   a polynucleotide encoding an ovarian carcinoma polypeptide; or

(iii)   an antigen-presenting cell that expresses an ovarian carcinoma polypeptide;

such that T cells proliferate; and

(b)   administering to the patient an effective amount of the proliferated T cells, and therefrom inhibiting the development of ovarian cancer in the patient.

43.   A method for inhibiting the development of ovarian cancer in a patient, comprising the steps of:

(a)   incubating CD4$^+$ T cells isolated from a patient with one or more of:

(i)   an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

complements of such polynucleotides;

(ii)   a polynucleotide encoding an ovarian carcinoma polypeptide; or

(iii)   an antigen-presenting cell that expresses an ovarian carcinoma polypeptide;

such that T cells proliferate;

(b)   cloning one or more proliferated cells; and

(c)   administering to the patient an effective amount of the cloned T cells.

44.   A method for inhibiting the development of ovarian cancer in a patient, comprising the steps of:

(a)   incubating $CD8^+$ T cells isolated from a patient with one or more of:

(i)   an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

complements of such polynucleotides;

(ii)   a polynucleotide encoding an ovarian carcinoma polypeptide;
or

(iii)   an antigen-presenting cell that expresses an ovarian carcinoma
polypeptide;

such that T cells proliferate; and

(b)   administering to the patient an effective amount of the proliferated
T cells, and therefrom inhibiting the development of ovarian cancer in the patient.

45.   A method for inhibiting the development of ovarian cancer in a patient,
comprising the steps of:

(a)   incubating CD8^{+} T cells isolated from a patient with one or more of:

(i)   an ovarian carcinoma polypeptide comprising at least an
immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one
or more substitutions, deletions, additions and/or insertions such that the ability of the variant
to react with antigen-specific antisera is not substantially diminished, wherein the ovarian
carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide
sequence selected from the group consisting of:

polynucleotides recited in any one of SEQ ID NOs:1-387 or
391; and

complements of such polynucleotides;

(ii)   a polynucleotide encoding an ovarian carcinoma polypeptide;
or

(iii)   an antigen-presenting cell that expresses an ovarian carcinoma
polypeptide;

such that the T cells proliferate;

(b)   cloning one or more proliferated cells ; and

(c)   administering to the patient an effective amount of the cloned T cells.

46.   A method for identifying a secreted tumor antigen, comprising the
steps of:

(a)   implanting tumor cells in an immunodeficient mammal;

(b)   obtaining serum from the immunodeficient mammal after a time sufficient to permit secretion of tumor antigens into the serum;

(c)   immunizing an immunocompetent mammal with the serum;

(d)   obtaining antiserum from the immunocompetent mammal; and

(e)   screening a tumor expression library with the antiserum, and therefrom identifying a secreted tumor antigen.

47.   A method according to claim 46, wherein the immunodeficient mammal is a SCID mouse and wherein the immunocompetent mammal is an immunocompetent mouse.

48.   A method for identifying a secreted ovarian carcinoma antigen, comprising the steps of:

(a)   implanting ovarian carcinoma cells in a SCID mouse;

(b)   obtaining serum from the SCID mouse after a time sufficient to permit secretion of ovarian carcinoma antigens into the serum;

(c)   immunizing an immunocompetent mouse with the serum;

(d)   obtaining antiserum from the immunocompetent mouse; and

(e)   screening an ovarian carcinoma expression library with the antiserum, and therefrom identifying a secreted ovarian carcinoma antigen.

49.   A method for determining the presence or absence of a cancer in a patient, comprising the steps of:

(a)   contacting a biological sample obtained from a patient with a binding agent that binds to an ovarian carcinoma protein, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i)   polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

(ii)   complements of the foregoing polynucleotides;

(b)   detecting in the sample an amount of polypeptide that binds to the binding agent; and

(c)   comparing the amount of polypeptide to a predetermined cut-off value, and therefrom determining the presence or absence of a cancer in the patient.

50.   A method according to claim 49, wherein the binding agent is an antibody.

51.   A method according to claim 50, wherein the antibody is a monoclonal antibody.

52.   A method according to claim 49, wherein the cancer is ovarian cancer.

53.   A method for monitoring the progression of a cancer in a patient, comprising the steps of:

(a)   contacting a biological sample obtained from a patient at a first point in time with a binding agent that binds to an ovarian carcinoma protein, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i)   polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

(ii)   complements of the foregoing polynucleotides;

(b)   detecting in the sample an amount of polypeptide that binds to the binding agent;

(c)   repeating steps (a) and (b) using a biological sample obtained from the patient at a subsequent point in time; and

(d)   comparing the amount of polypeptide detected in step (c) to the amount detected in step (b) and therefrom monitoring the progression of the cancer in the patient.

54.   A method according to claim 53, wherein the binding agent is an antibody.

55.   A method according to claim 54, wherein the antibody is a monoclonal antibody.

56.   A method according to claim 53, wherein the cancer is ovarian cancer.

57.   A method for determining the presence or absence of a cancer in a patient, comprising the steps of:

(a)   contacting a biological sample obtained from a patient with an oligonucleotide that hybridizes to a polynucleotide that encodes an ovarian carcinoma protein, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i)   polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

(ii)   complements of the foregoing polynucleotides;

(b)   detecting in the sample an amount of a polynucleotide that hybridizes to the oligonucleotide; and

(c)   comparing the amount of polynucleotide that hybridizes to the oligonucleotide to a predetermined cut-off value, and therefrom determining the presence or absence of a cancer in the patient.

58.   A method according to claim 57, wherein the amount of polynucleotide that hybridizes to the oligonucleotide is determined using a polymerase chain reaction.

59.   A method according to claim 57, wherein the amount of polynucleotide that hybridizes to the oligonucleotide is determined using a hybridization assay.

60.   A method for monitoring the progression of a cancer in a patient, comprising the steps of:

(a)   contacting a biological sample obtained from a patient with an oligonucleotide that hybridizes to a polynucleotide that encodes an ovarian carcinoma protein, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i)   polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

(ii)   complements of the foregoing polynucleotides;

(b)   detecting in the sample an amount of a polynucleotide that hybridizes to the oligonucleotide;

(c)   repeating steps (a) and (b) using a biological sample obtained from the patient at a subsequent point in time; and

(d)   comparing the amount of polynucleotide detected in step (c) to the amount detected in step (b) and therefrom monitoring the progression of the cancer in the patient.

61.   A method according to claim 60, wherein the amount of polynucleotide that hybridizes to the oligonucleotide is determined using a polymerase chain reaction.

62.   A method according to claim 60, wherein the amount of polynucleotide that hybridizes to the oligonucleotide is determined using a hybridization assay.

63.   A diagnostic kit, comprising:

(a)   one or more antibodies or antigen-binding fragments thereof that specifically bind to an ovarian carcinoma protein that comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i)   polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

(ii)   complements of the foregoing polynucleotides.; and

(b)   a detection reagent comprising a reporter group.

64.   A kit according to claim 63, wherein the antibodies are immobilized on a solid support.

65.   A kit according to claim 63, wherein the solid support comprises nitrocellulose, latex or a plastic material.

66.   A kit according to claim 63, wherein the detection reagent comprises an anti-immunoglobulin, protein G, protein A or lectin.

67.   A kit according to claim 63, wherein the reporter group is selected from the group consisting of radioisotopes, fluorescent groups, luminescent groups, enzymes, biotin and dye particles.

68.   A diagnostic kit, comprising:

(a)   an oligonucleotide comprising 10 to 40 nucleotides that hybridize under moderately stringent conditions to a polynucleotide that encodes an ovarian carcinoma protein, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i)   polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

(ii)   complements of the foregoing polynucleotides; and

(b)   a diagnostic reagent for use in a polymerase chain reaction or hybridization assay.

SEQUENCE LISTING

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<120> COMPOSITIONS AND METHODS FOR THE THERAPY AND
      DIAGNOSIS OF OVARIAN CANCER

<130> 210121.462PC

<140> PCT
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attgtttgct cccccaagtt ccaggaaact ggattcttta aactaactga ccatggacta     300
gaggagattt cttcctgtcg ccagaaagga tttcatccac acagcaagga tccacctctg     360
ttctgtagct gcagccacgt gactgttgtg gacagagcag tgaccatcac agaccttcga     420
tgagcgtttg agtccaacac cttccaagaa caacaaaacc atatcagtgt actgtagccc     480
cttaatttaa gctttctaga aagctttgga agtttttgta gatagtagaa aggggggcat     540
cacctgagaa agagctgatt ttgtatttca ggtttgaaaa gaaataactg aacatatttt     600
ttaggcaagt cagaaagaga acatggtcac ccaaaagcaa ctgtaactca gaaattaagt     660
tactcagaaa ttaagtagct cagaaattaa gaaagaatgg tataatgaac ccccatatac     720
ccttccttct ggattcacca attgttaaca ttttttttcct ctcagctatc cttctaattt     780
ctctctaatt tcaatttgtt tatatttacc tctgggctca ataagggcat ctgtgcagaa     840
atttggaagc catttagaaa atcttttgga ttttcctgtg gtttatggca atatgaatgg     900
agcttattac tggggtgagg gacagcttac tccatttgac cagattgttt ggctaacaca     960
tcccgaagaa tgattttgtc aggaattatt gttatttaat aaatatttca ggatattttt    1020
cctctacaat aaagtaacaa tta                                            1043

    <210> 20
    <211> 448
    <212> DNA
    <213> Homo sapien

    <400> 20
ggacgacaag gccatggcga tatcggatcc gaattcaagc ctttggaatt aaataaacct      60
ggaacaggga aggtgaaagt tggagtgaga tgtcttccat atctatacct ttgtgcacag     120
ttgaatggga actgtttggg tttaggcat cttagagttg attgatggaa aaagcagaca     180
```

```
ggaactggtg ggaggtcaag tggggaagtt ggtgaatgtg gaataactta cctttgtgct        240
ccacttaaac cagatgtgtt gcagcttcc tgacatgcaa ggatctactt taattccaca         300
ctctcattaa taaattgaat aaaagggaat gttttggcac ctgatataat ctgccaggct        360
atgtgacagt aggaaggaat ggtttcccct aacaagccca atgcactggt ctgactttat        420
aaattattta ataaaatgaa ctattatc                                           448
```

    <210> 21
    <211> 411
    <212> DNA
    <213> Homo sapien

    <400> 21
```
ggcagtgaca ttcaccatca tgggaaccac cttcccttt cttcaggatt ctctgtagtg          60
gaagagagca cccagtgttg ggctgaaaac atctgaaagt agggagaaga acctaaaata        120
atcagtatct cagagggctc taaggtgcca agaagtctca ctggacattt aagtgccaac        180
aaaggcatac tttcggaatc gccaagtcaa aactttctaa cttctgtctc tctcagagac        240
aagtgagact caagagtcta ctgctttagt ggcaactaca gaaaactggt gttacccaga        300
aaaacaggag caattagaaa tggttccaat atttcaaagc tccgcaaaca cgatgtgctt        360
tcctttgccc atttaggggtt tcttctcttt cctttctctt tattaaccac t               411
```

    <210> 22
    <211> 896
    <212> DNA
    <213> Homo sapien

    <220>
    <221> misc_feature
    <222> (1)...(896)
    <223> n = A,T,C or G

    <400> 22
```
tgcgctgaaa acaacggcct cctttactgt taaaatgcag ccacaggtgc ttagccgtgg         60
gcatctcaac caccagcctc tgtggggggc aggtgggcgt ccctgtgggc ctctgggccc       120
acgtccagcc tctgtcctct gccttccgtt cttcgacagt gttcccggca tccctggtca       180
cttggtactt ggcgtgggcc tcctgtgctg ctccagcagc tcctccaggn ggtcggcccg       240
cttcaccgca gcctcatgtt gtgtccggag gctgctcacg gcctcctcct tcctcgcgag       300
ggctgtcttc accctccggn gcacctcctc cagctccagc tgctggcggg cctgcagcgt       360
ggccagctcg gccttggcct gccgcgtctc ctcctcatag gctgccagcc ggtcctcgaa       420
ctcctggcgg atcacctggg ccaggttgct gcgctcgcta gaaagctgct cgttcaccgc       480
ctgcgcatcc tccagcgccc gctccttctg ccgcacaagg ccctgcagac gcagattctc       540
gccctcggcc tccccaagct ggccttcag ctccgagcac cgctcctgaa gcttccgctc        600
cgactgctcc agctcggaga gctcggcctc gtacttgtcc cgtaagcgct tgatgcggct       660
ctcggcagcc ttctcactct cctccttggc cagcgccatg tcggcctcca gccggtgaat       720
gaccagctca atctccttgt cccggccttt ccggatttct tccctcagct cctgttcccg       780
gttcagcagc cacgcctcct ccttcctggt gcggccggcc tcccacgcct gcctctccag       840
ctccagctgc tgcttcaggg tattcagctc catctggcgg gcctgcagcg tggcca          896
```

    <210> 23
    <211> 111
    <212> DNA
    <213> Homo sapien

    <400> 23
```
caacttatta cttgaaatta taatatagcc tgtccgtttg ctgtttccag gctgtgatat        60
attttcctag tggtttgact ttaaaaataa ataaggttta attttctccc c                111
```

```
<210> 24
<211> 531
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(531)
<223> n = A,T,C or G

<400> 24
tgcaagtcac gggagtttat ttatttaatt ttttttcccca gatggagact ctgtcgccca      60
ggctggagtg caatggtgtg atcttggctc actgcaacct ccacctcctg ggttcaagcg     120
attctcctgc cacagcctcc cgagtagctg ggattacagg tgcccgccac cacacccagc     180
taattttttat attttttagta aagacagggt ttccccatgt tggccaggct ggtcttgaac     240
ttctgacctc aggtgatcca cctgcctcgg cctcccaaag tgttgggatt acaggcgtga     300
gctacccgtg cctggccagc cactggagtt taaaggacag tcatgttggc tccagcctaa     360
ggcggcattt tcccccatca gaaagcccgc ggctcctgta cctcaaaata gggcacctgt     420
aaagtcagtc agtgaagtct ctgctctaac tggccacccg gggccattgg cntctgacac     480
agccttgcca ggangcctgc ntctgcaaaa gaaaagttca cttcctttcc g               531


<210> 25
<211> 471
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(471)
<223> n = A,T,C or G

<400> 25
cagagaacct kagaaagatg tcgcgttttc tttmaatgaa tgagagaagc ccatttgtat      60
ccctgaatca ttgagaaaag gcggcggtgg cgacagcggc gacctaggga tcgatctgga     120
gggacttggg gagcgtgcag agacctctag ctcgagcgcg agggaccctc cgccgggatg     180
cctggggagc agatggaccc tactggaagt cagttggatt cagatttctc tcagcaagat     240
actccttgcc tgataattga agattctcag cctgaaagcc aggttctaya ggatgattct     300
ggttctcact tcagtatgct atctcgacac cttcctaatc tccagacgca caaagaaaat     360
cctgtgttgg atgttgngtc caatccttga acaaacagct ggagaagaac gaggagaccg     420
gtaatagtgg gttcaatgaa catttgaaag aaaaccaggt tgcagaccct g               471


<210> 26
<211> 541
<212> DNA
<213> Homo sapien

<400> 26
gactgtcctg aacaagggac ctctgaccag agagctgcag gagatgcaga gtggtggcag      60
gagtggaagc caaagaacac ccaccttcct cccttgaagg agtagagcaa ccatcagaag     120
atactgtttt attgctctgg tcaaacaagt cttcctgagt tgacaaaacc tcaggctctg     180
gtgacttctg aatctgcagt ccactttcca taagttcttg tgcagacaac tgttcttttg     240
cttccatagc agcaacagat gctttgggggc taaaaggcat gtcctctgac cttgcaggtg     300
gtggattttg ctcttttaca acatgtacat ccttactggg ctgtgctgtc acaggatgt     360
ccttgctgga ctgttctgct atggggatat cttcgttgga ctgttcttca tgcttaattg     420
```

cagtattagc atccacatca gacagcctgg tataaccaga gttggtggtt actgattgta   480
gctgctcttt gtccacttca tatggcacaa gtattttcct caacatcctg gctctgggaa   540
g   541

          <210> 27
          <211> 461
          <212> DNA
          <213> Homo sapien

          <220>
          <221> misc_feature
          <222> (1)...(461)
          <223> n = A,T,C or G

          <400> 27
gaaatgtata tttaatcatt ctcttgaacg atcagaactc traaatcagt tttctataac   60
arcatgtaat acagtcaccg tggctccaag gtccaggaag gcagtggtta acacatgaag   120
agtgtgggaa gggggctgga aacaaagtat tcttttcctt caaagcttca ttcctcaagg   180
cctcaattca agcagtcatt gtccttgctt tcaaaagtct gtgtgtgctt catggaaggt   240
atatgtttgt tgccttaatt tgaattgtgg ccaggaaggg tctggagatc taaattcaga   300
gtaagaaaac ctgagctaga actcaggcat ttctcttaca gaacttggct tgcagggtag   360
aatgaangga aagaaactta gaagctcaac aagctgaaga taatcccatc aggcatttcc   420
cataggcctt gcaactctgt tcactgagag atgttatcct g   461

          <210> 28
          <211> 541
          <212> DNA
          <213> Homo sapicn

          <400> 28
agtctggagt gagcaaacaa gagcaagaaa caarragaag ccaaaagcag aaggctccaa   60
tatgaacaag ataaatctat cttcaaagac atattagaag ttgggaaaat aattcatgtg   120
aactagacaa gtgtgttaag agtgataagt aaaatgcacg tggagacaag tgcatcccca   180
gatctcaggg acctcccct gcctgtcacc tggggagtca gaggacacga tagtgcatgt   240
tctttgtctc tgaattttta grtatatgtg ctgtaatgtt gctctgagga agccctgga   300
aagtctatcc caacatatcc acatcttata ttccacaaat taagctgtag tatgtaccct   360
aagacgctgc taattgactg ccacttcgca actcaggtgc ggctgcattt tagtaatggg   420
tcaaatgatt cacttttttat gatgcttccc aaggtgcctt ggcttctctt cccaactgac   480
aaatgcccaa gttgagaaaa atgatcataa ttttagcata aaccgagcaa tcggcgaccc   540
c   541

          <210> 29
          <211> 411
          <212> DNA
          <213> Homo sapien

          <400> 29
tagctgtctt cctcactctt atggcaatga ccccatatct taatggatta agataatgaa   60
agtgtatttc ttacactctg tatctatcac cagaagctga ggtgatagcc cgcttgtcat   120
tgtcatccat attctgggac tcaggcggga actttctgga atattgccag ggagcatggc   180
agagggcac agtgcattct gggggaatgc acattggctc agcctgggta atgagtgata   240
tacattacct ctgttcacaa ctcattgccc agcaccagtc acaaggcccc accaaatacc   300
agagcccaag aaatgtagtc ctgttgatat ggttttgctg tgtcccaacc caaatctcat   360
cttgaattgt aagctcccat aattcccatg tgttgtggga gggacctggt g   411

```
      <210> 30
      <211> 511
      <212> DNA
      <213> Homo sapien

      <400> 30
atcatgagga tgttaccaaa gggatggtac taaaccattt gtattcgtct cttttcacac      60
tgctttgaag atactacctg agactgggta atttataaac aaaagagatt taattgactc     120
acagttctgc atggctgaag aggcctcagg aaacttacag tcatggtgga aggcaaagga     180
ggagcaaggc atgtcttaca tgtcagtagg agagagagcg agagcaggag aacctgccac     240
ttataaacca ttcagatctc ataactccct atcatgagaa aaacatggag gaaaccaccc     300
tcatgatcca atcacctccc gccaggtccc tccctcgaca cgtggggatt ataattcagg     360
attagaggga cacagagaca aaccatatca tcattcatga gaaatccacc ctcatagtcc     420
aatcagctcc taccaggccc cacctccaac actgggatt gcaattcaac atgagatttg      480
gatggggaca cagttcaaa ccatatcata c                                     511
```

```
      <210> 31
      <211> 827
      <212> DNA
      <213> Homo sapien

      <400> 31
catggccttt ctccttagag gccagaggtg ctgccctggc tgggagtgaa gctccaggca      60
ctaccagctt tcctgatttt cccgtttggt ccatgtgaag agctaccacg agccccagcc     120
tcacagtgtc cactcaaggg cagcttggtc ctcttgtcct gcagaggcag gctggtgtga     180
ccctgggaac ttgacccggg aacaacaggt ggcccagagt gagtgtggcc tggcccctca     240
acctagtgtc cgtcctcctc tctcctggag ccagtcttga gtttaaaggc attaagtgtt     300
agatacaagc tccttgtggc tggaaaaaca cccctctgct gataaagctc aggggcact     360
gaggaagcag aggccccttg ggggtgccct cctgaagaga gcgtcaggcc atcagctctg     420
tccctctggt gctcccacgt ctgttcctca ccctccatct ctgggagcag ctgcacctga     480
ctggccacgc gggggcagtg gaggcacagg ctcaggtgg ccgggctacc tggcacccta     540
tggcttacaa agtagagttg gcccagtttc cttccacctg aggggagcac tctgactcct     600
aacagtcttc cttgccctgc catcatctgg ggtggctggc tgtcaagaaa ggccgggcat     660
gctttctaaa cacagccaca ggaggcttgt agggcatctt ccaggtgggg aaacagtctt     720
agataagtaa ggtgacttgc ctaaggcctc ccagcaccct tgatcttgga gtctcacagc     780
agactgcatg tsaacaactg gaaccgaaaa catgcctcag tataaaa                   827
```

```
      <210> 32
      <211> 291
      <212> DNA
      <213> Homo sapien

      <400> 32
ccagaacctc cttctctttg gagaatgggg aggcctcttg gagacacaga gggtttcacc      60
ttggatgacc tctagagaaa ttgcccaaga agcccacctt ctggtcccaa cctgcagacc     120
ccacagcagt cagttggtca ggccctgctg tagaaggtca cttggctcca ttgcctgctt     180
ccaaccaatg ggcaggagag aaggcctta tttctcgccc acccattctc ctgtaccagc      240
acctccgttt tcagtcagyg ttgtccagca acggtaccgt ttacacagtc a              291
```

```
      <210> 33
      <211> 491
      <212> DNA
      <213> Homo sapien

      <400> 33
```

```
tgcatgtagt tttatttatg tgttttsgtc tggaaaacca agtgtcccag cagcatgact         60
gaacatcact cacttcccct acttgatcta caaggccaac gccgagagcc cagaccagga        120
ttccaaacac actgcacgag aatattgtgg atccgctgtc aggtaagtgt ccgtcactga        180
cccaracgct gttacgtggc acatgactgt acagtgccac gtaacagcac tgtactttc         240
tcccatgaac agttacctgc catgtatcta catgattcag aacattttga acagttaatt        300
ctgacacttg aataatccca tcaaaaaccg taaaatcact ttgatgtttg taacgacaac        360
atagcatcac tttacgacag aatcatctgg aaaaacagaa caacgaatac atacatctta        420
aaaaatgctg gggtgggcca ggcacagctt cacgcctgta atcccagcac tttgggaggc        480
ttaagcgggt g                                                            491
```

```
        <210> 34
        <211> 521
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(521)
        <223> n = A,T,C or G

        <400> 34
tggggcggaa agaagccaag gccaaggagc tggtgcggca gctgcagctg gaggccgagg         60
agcagaggaa gcagaagaag cggcagagtg tgtcgggcct gcacagatac cttcacttgc        120
tggatggaaa tgaaaattac ccgtgtcttg tggatgcaga cggtgatgtg atttccttcc        180
caccaataac caacagtgag aagacaaagg ttaagaaaac gacttctgat ttgtttttgg        240
aagtaacaag tgccaccagt ctgcagattt gcaaggatgc catggatgcc ctcattctga        300
aaatcggcaag aaatgaaaaa gtacacttta gaaaataaag aggaaggatc actctcagat       360
actgaagccg atgcagtctc tggacaactt ccagatccca caacgaatcc cagtgctgga        420
aaggacgggc ccttccttct ggtggtggaa cangtcccgg tggtggatct tggaanggaa        480
cctgaangtg gtgtaccccg tccaaggccg accttggcca c                          521
```

```
        <210> 35
        <211> 161
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(161)
        <223> n = A,T,C or G

        <400> 35
tcccgcgctc gcagggcncg tgccacctgc cygtccgccc gctcgctcgc tcgccgccg          60
cgccgcgctg ccgaccgyca gcatgctgcg gagagtgggc tgccccgcgc tgccgctgcc        120
gccgcgcccg ctgctgccgc tgctgccgct gctgctgctg c                          161
```

```
        <210> 36
        <211> 341
        <212> DNA
        <213> Homo sapien

        <400> 36
ggcgggtagg catggaactg agaagaacga agaagctttc agactacgtg gggaagaatg         60
aaaaaaccaa aattatcgcc aagattcagc aaagggaca gggagctcca gcccgagagc        120
ctattattag cagtgaggag cacaagcagc tgatgctgta ctatcacaga agacaagagg        180
```

```
agctcaagag attggaagaa aatgatgatg atgcctattt aaactcacca tgggcggata      240
acactgcttt gaaaagacat tttcatggag tgaaagacat aaagtggaga ccaagatgaa      300
gttcaccagc tgatgacact tccaaagaga ttagctcacc t                         341
```

```
        <210> 37
        <211> 521
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(521)
        <223> n = A,T,C or G

        <400> 37
tctgaaggtt aaatgtttca tctaaatagg gataatgrta aacacctata gcatagagtt      60
gtttgagatt aaatgagata atacatgtaa aattatgtgc ctggcataca gcaagattgt     120
tgttgttgtt gatgatgatg atgatgatga taatattttt ctatccccag tgcacaactg     180
cttgaaccta ttagaraatc aatacatgtt tcttgaactg agatcaattt ccccatgttg     240
tctgactgat gaagccctac attttcttct agaggagatg acatttgagc aagatcttaa     300
agaaatcag atgccttcac ctgaccactg rttggtgatc ccatggcact ttgtacatct     360
ctccattagc tctcatctca ccagcccatc attattgtat gtgctgcctt ctgaagcttg     420
cagctggcta ccatcmggta gaataaaaat catcctttca taaaatagtg accctccttt     480
tttatttgca tttcccaaag ccaagcaccg tgggangqta g                        521
```

```
        <210> 38
        <211> 461
        <212> DNA
        <213> Homo sapien

        <400> 38
tatgaagaag ggaaagaag ataatttgtg aaagaaatgg gtccagttac tagtctttga      60
aaagggtcag tctgtagctc ttcttaatga gaataggcag ctttcagttg ctcagggtca     120
gatttcctta gtggtgtatc taatcacagg aaacatctgt ggttccctcc agtctctttc     180
tggggggactt gggcccactt ctcatttcat ttaattagag gaaatagaac tcaaagtaca     240
atttactgtt gtttaacaat gccacaaaga catggttggg agctatttct tgatttgtgt     300
aaaatgctgt ttttgtgtgc tcataatggt tccaaaaatt gggtgctggc caaagagaga     360
tactgttaca gaagccagca agaagacctc tgttcattca cacccccggg gatatcagga     420
attgactcca gtgtgtgcaa atccagtttg gcctatcttc t                        461
```

```
        <210> 39
        <211> 769
        <212> DNA
        <213> Homo sapien

        <400> 39
tgagggactg attggtttgc tctctgctat tcaattcccc aagcccactt gttcctgcag      60
cgtcctcctt ctcattccct ttagttgtac cctctctttc atctgagacc tttccttctt     120
gatgtcgcct ttcttcttc ttgctttttc tgatgttctg ctcagcatgt tctgggtgct     180
tctcatctgc atcattcctt tcagatgctg tagcttcttc ctcctctttc tgcctccttt     240
tcttttttctt tttttggggg ggcttgctct ctgactgcag ttgagggcc ccagggtcct     300
ggcctttgag acgagccagg aaggcctgct cctgggcctc taggcgagca agcttggcct     360
tcattgtgat cccaagacgg gcagccttgt gtgctgttcg ccctcacag gcttggagca     420
gcatctcatc agtcagaatc tttggggact tggacccctg gttgtcgtca tcactgcagc     480
tctccaagtc tttgtttggc ttctctccac ctgaagtcaa tgtagccatc ttcacaaact     540
```

```
tctgatacag caagttgggc ttggatgat  tataacgggt ggtctcctta gaaaggctcc   600
ttatctgtac tccatcctgc ccagtttcca ctaccaagtt ggccgcagtc ttgttgaaga   660
gctcattcca ccagtggttt gtgaactcct tggcagggtc atgtcctacc ccatgagtgt   720
cttgcttcag ggtcaccctg agagcctgag tgataccatt ctccttccg              769
```

```
        <210> 40
        <211> 292
        <212> DNA
        <213> Homo sapien
```

```
        <400> 40
gacaacatga aataaatcct agaggacaaa attaaactca atagagtgta gtctacttaa    60
aaactcgaaa aatgagcaag tctggtggga gtggaggaag ggctatacta taaatccaag   120
tgggcctcct gatcttaaca agccatgctc attatacaca tctctgaact ggacatacca   180
cctttacgca ggaaacaggg cttggaactt ctaagggaaa ttaacatgca ccacccacat   240
ctaacctacc tgccgggtag gtaccatccc tgcttcgctg aaatcagtgc tc           292
```

```
        <210> 41
        <211> 406
        <212> DNA
        <213> Homo sapien
```

```
        <400> 41
ttggaattaa ataaacctgg aacagggaag gtgaaagttg gagtgagatg tcttccatat    60
ctataccttt gtgcacagtt gaatgggaac tgtttgggtt tagggcatct tagagttgat   120
tgatggaaaa agcagacagg aactggtggg aggtcaagtg gggaagttgg tgaatgtgga   180
ataacttacc tttgtgctcc acttaaacca gatgtgttgc agctttcctg acatgcaagg   240
atctacttta attccacact ctcattaata aattgaataa aagggaatgt tttggcacct   300
gatataatct gccaggctat gtgacagtag gaaggaatgg tttcccctaa caagcccaat   360
gcactggtct gactttataa attatttaat aaaatgaact attatc                 406
```

```
        <210> 42
        <211> 381
        <212> DNA
        <213> Homo sapien
```

```
        <400> 42
aaactggacc tgcaacaggg acatgaattt actgcatggt ctgagcaagc tcagccctc     60
tacctcaggg ccccacagcc atgactacct cccccaggag cgggagggtg aagggggcct   120
gtctctgcaa gtggagccag agtggaggaa tgagctctga agacacagca cccagccttc   180
tcgcaccagc caagccttaa ctgcctgcct gaccctgaac cagaacccag ctgaactgcc   240
cctccaaggg acaggaaggc tgggggaggg agtttacaac ccaagccatt ccacccctc    300
ccctgctggg gagaatgaca catcaagctg ctaacaattg ggggaagggg aaggaagaaa   360
actctgaaaa caaaatcttg t                                             381
```

```
        <210> 43
        <211> 451
        <212> DNA
        <213> Homo sapien
```

```
        <400> 43
catgcgtttc accactgttg gccaggctgg tctcgaactc ctggcctcaa gcaatccacc     60
cgcctcagcc tccaaaagtg ctgggattac agatgtgagc catggcacca tgccaaaagg   120
ctatattcct ggctctgtgt ttccgagact gcttttaatc ccaacttctc tacatttaga   180
ttaaaaaata ttttattcat ggtcaatctg gaacataatt actgcatctt aagtttccac   240
```

```
tgatgtatat agaaggctaa aggcacaatt tttatcaaat ctagtagagt aaccaaacat        300
aaaatcatta attactttca acttaataac taattgacat tcctcaaaag agctgttttc        360
aatcctgata ggttctttat tttttcaaaa tatatttgcc atgggatgct aatttgcaat        420
aaggcgcata atgagaatac cccaaactgg a                                        451
```

```
        <210> 44
        <211> 521
        <212> DNA
        <213> Homo sapien


        <400> 44
gttggacccc cagggactgg aaagacactt cttgcccgag ctgtggcggg agaagctgat         60
gttccttttt attatgcttc tggatccgaa tttyatgaga tgtttgtggg tgtgggagcc        120
agccgtatca gaaatctttt tagggaagca aaggcgaatg ctccttgtgt tatatttatt        180
gatgaattag attctgttgg tgggaagaga attgaatctc caatgcatcc atattcaagg        240
cagaccataa atcaacttct tgctgaaatg gatggtttta aacccaatga aggagttatc        300
ataataggag ccacaaactt cccagaggca ttagataatg ccttaatacc gtcctggtcg        360
ttttgacatg caagttacag ttccaaggcc agatgtaaaa ggtcgaacag aaattttgaa        420
atggtatctc aataaaataa agtttgatca atcccgttga tccagaaatt atagcctcga        480
ggtactggtg gcttttccgg aagcagagtt gggagaatct t                            521
```

```
        <210> 45
        <211> 585
        <212> DNA
        <213> Homo sapien


        <400> 45
gcctacaaca tccagaaaga gtctaccctg cacctggtgc tscgtctcag aggtgggatg         60
cagatcttcg tgaagaccct gactggtaag accatcactc tcgaagtgga gccgagtgac        120
accatygaga acgtcaaagc aaagatccar gacaaggaag gcrtycctcc tgaccagcag        180
aggttgatct ttgccggaaa gcagctggaa gatggdcgca ccctgtctga ctacaacatc        240
cagaaagagt cyaccctgca cctggtgctc cgtctcagag gtgggatgca ratcttcgtg        300
aagaccctga ctggtaagac catcaccctc gaggtggagc ccagtgacac catcgagaat        360
gtcaaggcaa agatccaaga taaggaaggc atccctcctg atcagcagag gttgatcttt        420
gctgggaaac agctggaaga tggacgcacc ctgtctgact acaacatcca gaaagagtcc        480
actctgcact ggtcctgcg cttgagggg ggtgtctaag tttcccctt taaggtttcm         540
acaaattca ttgcactttc ctttcaataa agttgttgca ttccc                        585
```

```
        <210> 46
        <211> 481
        <212> DNA
        <213> Homo sapien


        <400> 46
gaactgggcc ctgagcccaa gtcatgcctt gtgtccgcat ctgccgtgtc acctctgtkc         60
ctgcccctca ccctccctc ctggtcttct gagccagcac catctccaaa tagcctattc        120
cttcctgcaa atcacacaca catgcgggcc acacatacct gctgccctgg agatggggaa        180
gtaggagaga tgaatagagg cccatacatt gtacagaagg aggggcaggt gcagataaaa        240
gcagcagacc cagcggcagc tgaggtgcat ggagcacggt tggggccggc attgggctga        300
gcacctgatg ggcctcatct cgtgaatcct cgaggcagcg ccacagcaga ggagttaagt        360
ggcacctggg ccgagcagag caggagactg aggtcagag tggaggctaa gctgccctgg        420
aactcctcaa tcttgcctgc cccctagtat gaagccccct tcctgcccct acaattcctg        480
a                                                                        481
```

```
        <210> 47
```

```
        <211> 461
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(461)
        <223> n = A,T,C or G

        <400> 47
atggatctta ctttgccacc caggttggag tgcagtgctg caatcttggc tcactgcagc      60
cttaacctcc caggctcaag ctatcctcct gccaaagcct tccacatagc tgggactaca     120
ggtacacngc caccacaccc agctaaaatt tttgtatttt ttgtagagac gggatctcgc     180
cacgttgccc aggctggtcc catcctgacc tcaagcagat ctgcccacct cagcccccca     240
acgtgctagg attacaggcg tgagccaccg cacccagcct ttgttttgct tttaatggaa     300
tcaccagttc ccctccgtgt ctcagcagca gctgtgagaa atgctttgca tctgtgacct     360
ttatgaaggg gaacttccat gctgaatgag ggtaggatta catgctcctg tttcccgggg     420
gtcaagaaag cctcagactc cagcatgata agcagggtga g                        461

        <210> 48
        <211> 571
        <212> DNA
        <213> Homo sapien

        <400> 48
atagggcttt taaggaggga attcaggttc aatgaggtcg taaggccagg gctcttatcc      60
agtaagactg gggtccttag atgagaaaga gacacccgag gtccttctct ctgccgtgtg     120
aggatgcatc aagaaggcgg ccgtctgcaa gcgaaggaga ggccgcacca gaaaccgaca     180
ccttcatctt ggacttgcag cctctagaac tgagaaaata actgtctgtt ggttaagcca     240
cccagtttgt agtattctct tatggcttcc taagcagact aacaaacaaa cacccaaaat     300
taactgatgg cttcgctgtc ttctgtaaaa attgctatga cagaactttt cactcactgt     360
tttgcagttt ctccctcagt ccctggttct ttcttctcac ataatcccaa tttcaattta     420
tagttcatgg cccaggcaga gtcattcatc acggcatctc ctgagctaaa ccagcacctg     480
ctctgctcac ttcttgactg gctgctcatc atcagccctc ttgcagagat ttcatttcct     540
cccgtgccag gtacttcacg caccaagctc a                                    571

        <210> 49
        <211> 511
        <212> DNA
        <213> Homo sapien

        <400> 49
ggataatgaa gttgttttat ttagcttgga caaaaaggca tattcctcta ttttcttata      60
caacaaatat ccccaaaata aagcaagcat atatatcttg aatgtgtaat aatccagtga     120
taaacaagag cagtacttta aaagaaaaaa aaatatgtat ttctgtcagg ttaaaatgag     180
aatcaaaacc atttactctg ctaactcatt attttttgct ttcttcttgg ttaagagagg     240
caatgcaata cactgaaaaa ggttttttatc ttatctggca ttggaattag acatattcaa     300
accccagccc ccatttccaa acttttaagac cacaaacaag taatttactt ttctgaacat     360
tggtttttttc tggaaaatgg gaattataaa atagactttc cagactctta tgagattaaa     420
taagataatg tatgaaattc tttcttcttt tttacttctt tttccttttt gagatggagt     480
ctcacccgt cacccaggct ggagtacagt g                                    511

        <210> 50
        <211> 561
        <212> DNA
```

<213> Homo sapien

<400> 50

```
ccactgcact ccagcctggg tgacggagtg agactctgtc tcaaaaaaac aaacaaacaa      60
acaaacaaaa aactgaaaag gaaatagagt tcctctttcc tcatatatga atatattatt     120
tcaacagatt gttgatcacc taccatatgc ttggtattgt tctaattgct ggggatacag     180
caagaggttc tgcagaactt catggagcat gaaagtaaat aaacaaagtt aatttcaagg     240
ccaggcatgg ttgctcacac ctttagtccc agcactttgg gaggctgagg caggtggatc     300
acttgggccc aggagttcaa ggctgcagtg agccaagatt gtgccactac tctccaggct     360
gggcaacaga gcaagaccct gtctcagggg gaacaaaaag ttaatttcag attttgttaa     420
gtgctgtaaa ggaagtaaat aggttgatat tcaagagagc acctgaaggc caggcgtggt     480
ggctcacgcc tgtggtctaa cgctttggga agcccgagcg ggcggatcac aagctcagga     540
gaattttggc caggcatggt g                                              561
```

<210> 51
<211> 451
<212> DNA
<213> Homo sapien

<400> 51

```
agaatccatt tattgggttt caaactagtt acacaactga aatcagtttg gcactacttt      60
atacagggat tacgcctgtg tatgccgaca cttaaatact gtaccaggac cactgctgtg     120
cttaggtctg tattcagtca ttcagcatgt agatactaaa aatatactgt agtgttcctt     180
taaggaagac tgtacagggt gtgttgcaag atgacattca ccaatttgtg aatttatttca     240
acccagaaga tacctttcac tctataaact tgtcataggc aaacatgtgg tgttagcatt     300
gagagatgca cacaaaaatg ttacataaaa gttcagacat tctaatgata agtgaactga     360
aaaaaaaaaa aaccccacat ctcaattttt gtaacaagat aaagaaaata atttaaaaac     420
acaaaaaatg gcattcagtg gctacaaagc c                                   451
```

<210> 52
<211> 682
<212> DNA
<213> Homo sapien

<400> 52

```
caaatattta atataaatct ttgaaacaag ttcagakgaa ataaaaatca aagtttgcaa      60
aaacgtgaag attaacttaa ttgtcaaata ttcctcattg ccccaaatca gtattttttt     120
tatttctatg caaaagtatg ccttcaaact gcttaaatga tatatgatat gatacacaaa     180
ccagttttca aatagtaaag ccagtcatct tgcaattgta agaaataggt aaaagattat     240
aagacacctt acacacacac acacaccacac acacacacgt gtgcaccgcc aatgacaaaa     300
aacaatttcg cctctcctaa aataagaaca tgaagaccct taattgctgc caggagggaa     360
cactgtgtca cccctcccta caatccaggt agtttccttt aatccaatag caaatctggg     420
catatttgag aggagtgatt ctgacagcca csgttgaaat cctgtgggga accattcatg     480
tccacccact ggtgccctga aaaatgcca ataatttttc gctcccactt ctgctgctgt     540
ctcttccaca tcctcacata gacccccagac ccgctggccc ctggctgggc atcgcattgc     600
tggtagagca agtcataggt ctcgtctttg acgtcacaga agcgatacac caaattgcct     660
ggtcggtcat tgtcataacc ag                                             682
```

<210> 53
<211> 311
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature

```
        <222>  (1)...(311)
        <223>  n = A,T,C or G

        <400> 53
tttgacttta gtagggtct gaactattta ttttactttg ccngtaatat ttaraccyta        60
tatatctttc attatgccat cttatcttct aatgbcaagg gaacagwtgc taamctggct      120
tctgcattwa tcacattaaa aatggctttc ttggaaaatc ttcttgatat caataaagga      180
tcttttavag ccatcattta aagcmggntt ctctccaaca cgagtctgct sasgggggk       240
gagctgtgaa ctctggctga aggctttccc atacacactg caatgacmtg gtttctgacc      300
agbgtgagtt a                                                            311

        <210> 54
        <211> 561
        <212> DNA
        <213> Homo sapien

        <400> 54
agagaagccc cataaatgca atcagtgtgg gaaggccttc agtcagagct caagcctttt       60
cctccatcat cgggttcata ctggagagaa accctatgta tgtaatgaat gcggcagagc      120
ctttggtttt aactctcatc ttactgaaca cgtaaggatt cacacaggag aaaaacccta      180
tgtttgtaat gagtgcggca aagcctttcg tcggagttcc actcttgttc agcatcgaag      240
agttcacact ggggagaagc cctaccagtg cgttgaatgt gggaaagctt tcagccagag      300
ctcccagctc accctacatc agccgagttc acactggaga gaagccctat gactgtggtg      360
actgtgggaa ggccttcagc cggaggtcaa ccctcattca gcatcagaaa gttcacagcg      420
gagagactcg taagtgcaga aaacatggtc cagcctttgt tcatggctcc agcctcacag      480
cagatggaca gattcccact ggagagaagc acggcagaac ctttaaccat ggtgcaaatc      540
tcattctgcg ctggacagtt c                                                561

        <210> 55
        <211> 811
        <212> DNA
        <213> Homo sapien

        <400> 55
gagacagggt ctcactttgt cacccaggct ggaatgcagt ggtgcgatct tacgtagctc       60
actgcagccc tgacctcctg gactcaaaca attctcctgc ctcagccctg caagtagctg      120
ggactgtggg tgcatgccac catgcctggc taacttttgt agtttttgta aagatggggt      180
tttgccatgt tgcacatgct ggtcttgaac tcctgagctc aaacgatctg cccacctcgg      240
cctcccagaa tgttgggatt acaggggtaa accaccacgc ctggccccat tagggtattc      300
ttagcatcca cttgctcact gagattaatc ataagagatg ataagcactg gaagaaaaaa      360
attttttacta ggctttggat attttttttcc ttttttcagct ttatacagag gattggatct     420
ttagttttcc tttaactgat aataaaaacat tgaaaggaaa taagtttacc tgagattcac      480
agagataacc ggcatcactc ccttgctcaa ttccagtctt taccacatca attatttttca      540
gaggtgcagg ataaaggcct ttagtctgct ttcgcacttt ttcttccact tttttgtaaa      600
cctgttgcct gacaaatgga attgacagcg tatgccatga ctattccatt tgtcaggcat      660
acgctgtcaa ttttttccacc aatcccttgt ctctctttgg agagatcttc ttatcagcta     720
gtcctttggc aaaagtaatt gcaacttctt ctaggtattc tattgtccgt tccactggtg      780
gaacccctgg gaccaggact aaaacctcca g                                     811

        <210> 56
        <211> 591
        <212> DNA
        <213> Homo sapien

        <220>
```

```
<221> misc_feature
<222> (1)...(591)
<223> n = A,T,C or G

<400> 56
atctcatata tatattctt cctgacttta tttgcttgct tctgncacgc atttaaaata      60
tcacagagac caaaatagag cggctttctg gtggaacgca tggcagtcac aggacaaaat     120
acaaaactag ggggctctgt cttctcatac atcatacaat tttcaagtat ttttttatg      180
tacaaagagc tactctatct gaaaaaaaat taaaaaataa atgagacaag atagtttatg     240
catcctagga agaaagaatg ggaagaaaga acggggcagt tgggtacaga ttcctgtccc     300
ctgttcccag ggaccactac cttcctgcca ctgagttccc ccacagcctc acccatcatg     360
tcacagggca agtgccaggg taggtgggga ccagtggaga caggaaccag caacatactt     420
tggcctggaa gataaggaga aagtctcaga aacacactgg tgggaagcaa tcccacnggc     480
cgtgccccan gagcttccca cctgctgctg gctccctggg tggctttggg aacagcttgg     540
gcaggccctt ttgggtgggg nccaactggg cctttgggcc cgtgtggaaa g             591


<210> 57
<211> 481
<212> DNA
<213> Homo sapien


<400> 57
aaacattgag atggaatcat agggtttccc agaatcaggt ccatatttta actaaatgaa     60
aattatgatt tatagccttc tcaaatacct gccatacttg atatctcaac cagagctaat    120
tttacctctt tacaaattaa ataagcaagt aactggatcc acaatttata ntacctgtca    180
attttttctg tattaaacct ctatcatagt ttaagcctat tagggtactt aatccttaca    240
aataaacagg tttaaaaatca cctcaatagg caactgccct tctggttttc ttctttgact    300
aaacaatctg aatgcttaag attttccact ttgggtgcta gcagtacaca gtgttacact    360
ctgtattcca gacttcttaa attatagaaa aaggaatgta cactttttgt attctttctg    420
agcagggccg ggaggcaaca tcatctacca tggtagggac ttgtatgcat ggactacttt    480
a                                                                     481


<210> 58
<211> 141
<212> DNA
<213> Homo sapien


<400> 58
actctgtcgc ccaggctgga gcccabtggm gcgatctcga ctccctgcaa gctmcgcctc     60
acaggwtcat gccattctcc tgcctcagca tctggagtag ctgggactac aggcgccagc    120
caccatgccc agctaatttt t                                              141


<210> 59
<211> 191
<212> DNA
<213> Homo sapien


<400> 59
accttaaaga cataggagaa tttatactgg gagagaaagc ttacaaatgt aaggtttctg     60
acaagacttg ggagtgattc acacctggaa caacatactg gacttcacac tggabaqaaa    120
ccttcaagt gtaatgagtg tggcaaagcc tttggcaagc agtcaacact tattcaccat     180
caggcaattc a                                                         191


<210> 60
<211> 480
```

```
<212> DNA
<213> Homo sapien

<400> 60
agtcaggatc atgatggctc agtttcccac agcgatgaat ggagggccaa atatgtgggc    60
tattacatct gaagaacgta ctaagcatga taaacagttt gataacctca aaccttcagg   120
aggttacata acaggtgatc aagcccgtac ttttttccta cagtcaggtc tgccggcccc   180
ggttttagct gaaatatggg ccttatcaga tctgaacaag gatgggaaga tggaccagca   240
agagttctct atagctatga aactcatcaa gttaaagttg cagggccaac agctgcctgt   300
agtcctccct cctatcatga aacaaccccc tatgttctct ccactaatct ctgctcgttt   360
tgggatggga agcatgccca atctgtccat tcatcagcca ttgcctccag ttgcacctat   420
agcaacaccc ttgtcttctg ctacttcagg gaccagtatt cctccctaat gatgcctgct   480

<210> 61
<211> 381
<212> DNA
<213> Homo sapien

<400> 61
ctttcgattt ccttcaattt gtcacgtttg attttatgaa gttgttcaag ggctaactgc    60
tgtgtattat agctttctct gagttccttc agctgattgt taaatgaatc catttctgag   120
agcttagatg cagtttcttt ttcaagagca tctaattgtt ctttaagtct ttggcataat   180
tcttcctttt ctgatgactt tctatgaagt aaactgatcc ctgaatcagg tgtgttactg   240
agctgcatgt ttttaattct ttcgtttaat agctgcttct cagggaccag atagataagc   300
ttattttgat attccttaag ctcttggtga agttgttcga tttccataat ttccaggtca   360
cactggttat cccaaacttc t                                              381

<210> 62
<211> 906
<212> DNA
<213> Homo sapien

<400> 62
gtggaggtga aacggaggca agaaaggggg ctacctcagg agcgagggac aaaggggcg     60
tgaggcacct aggccgccgc accccggcga caggaagccg tcctgaaccg ggctaccggg   120
taggggaagg gcccgcgtag tcctcgcagg gccccagagc tggagtcggc tccacagccc   180
cgggccgtcg gcttctcact tcctggacct cccggcgcc cggcctgag gactgctcg     240
gcggagggag aagaggaaac agacttgagc agctcccgt tgtctcgcaa ctccactgcc   300
gaggaactct catttcttcc ctcgctcctt cacccccac ctcatgtaga aaggtgctga   360
agcgtccgga gggaagaaga acctgggcta ccgtcctggc cttcccmccc ccttcccggg   420
gcgctttggt gggcgtggag ttggggttgg ggggtgggt ggggttctt ttttggagtg   480
ctggggaact ttttccctt cttcaggtca ggggaaaggg aatgcccaat tcagagagac   540
atggggcaa gaaggacggg agtggaggag cttctggaac tttgcagccg tcatcgggag   600
gcggcagctc taacagcaga gagcgtcacc gcttggtatc gaagcacaag cggcataagt   660
ccaaacactc caaagacatg gggttggtga ccccgaagc agcatccctg ggcacagtta   720
tcaaaccttt ggtggagtat gatgatatca gctctgattc cgacaccttc tccgatgaca   780
tggccttcaa actagaccga agggagaacg acgaacgtcg tggatcagat cggagcgacc   840
gcctgcacaa acatcgtcac caccagcaca ggcgttcccg ggacttacta aaagctaaac   900
agaccg                                                              906

<210> 63
<211> 491
<212> DNA
<213> Homo sapien
```

```
<400> 63
gacatgtttg cctgcagggg accagagaca atgggattag ccagtgctca ctgttcttta        60
tgcttccaga gaggatgggg acagctctca ggtcagaatc caggctgaga aggccatgct       120
ggttggggc cccgggaagc acggtccgga tcctccctgg catcagcgta gacccgctgc        180
tcaggcttgg ggtaccaaac tcatgctctg tactgtttng gccccatgcg gtgagaggaa       240
aacctagaaa aagattggtc gtgctaagga atcagctgcc ccctcatcct ccgcatccaa       300
tgctggtgac aacatattcc ctctcccagg acacagactc ggtgactcca cactgggctg       360
agtggcctct ggaggctcgt ggcctaaggc agggctccgt aaggctgatc ggctgaactg       420
ggtggggtga gggtttctga cccttcgctt cccatcccat aaccgctgtc aatgagctca       480
cactgtggtc a                                                            491
```

```
<210> 64
<211> 511
<212> DNA
<213> Homo sapien
```

```
<400> 64
gatggcatgg tcgttgctaa tgtgcctgct gggatggagc acttcctcct gtgagcccag        60
gggacccgcc tgtccctgga gcttcggggca aggagggaag agtgatacca ggaaggtggg      120
gctgcagcca ggggccagag tcagttcagg gagtggtcct cggccctcaa agctcctccg       180
gggactgctc aggagtgatg gtgccctgga gtttgcccca acttccctgg ccaccctgga       240
aggtgcctgg ctgctccagg cctctaggct gggctgatgg gtttctccag gacacaagta       300
tcattaaagc caccctctcc tcagcttgtc aggccgcaca tgtgggacag gctgtgctca       360
caccccctc gcctgccctg ccctccatca ggaggagcca gtggaacctt cggaaagctc        420
ccagcatctc agcagccctc aaaagtcgtc ctggggcaag ctctggttct cctgactgga       480
ggtcatctgg gcttggcctg ctctctctcg c                                      511
```

```
<210> 65
<211> 394
<212> DNA
<213> Homo sapien
```

```
<400> 65
taaaaaagtg taacaaaggt ttatttagac tttcttcatg cccccagatc caggatgtct        60
atgtaaaccg ttatcttaca aagaaagcac aatatttggt ataaactaag tcagtgactt       120
gcttaactga aatagcgtcc atccaaaagt gggtttaagg taaaactacc tgacgatatt       180
ggcggggatc ctgcagtttg gactgcttga cgggtttgtc cagggttccg ggtctgttct       240
tggcactcat ggggacaggc atcctgctcg tctgtggggc cccgctggag cccttacgtg       300
aagctgaagg tatcgaccct aggggggctct aggcagtggg gaccttcatc cggaactaac      360
aaggtcgggg gagaggcctc ttgggctatg tggg                                    394
```

```
<210> 66
<211> 359
<212> DNA
<213> Homo sapien
<400> 66
caagcgttcc tttatggatg taaattcaaa cagtcatgct gagccatccc gggctgacag        60
tcacgttwaa gacactaggt cgggcgccac agtgccaccc aaggagaaga agaatttgga       120
attttccat gaagatgtac ggaaatctga tgttgaatat gaaaatggcc cccaaatgga        180
attccaaaag gttaccacag gggctgtaag acctagtgac cctcctaagt gggaaagagg       240
aatggagaat agtatttctg atgcatcaag aacatcagaa tataaaactg agatcataat       300
gaacgaaaat tccatatcca atatgagttt actcagagac agtgaaaact attcccagg        359
```

```
<210> 67
<211> 450
```

```
      <212> DNA
      <213> Homo sapien

      <220>
      <221> misc_feature
      <222> (1)...(450)
      <223> n = A,T,C or G

      <400> 67
taggaataac aaatgtttat tcagaaatgg ataagtaata cataatcacc cttcatctct        60
taatgcccct tcctctcctt ctgcacagga gacacagatg ggtaacatag aggcatggga       120
agtggaggag gacacaggac tagcccacca ccttctcttc ccggtctccc aagatgactg       180
cttatagagt ggaggaggca aacaggtccc ctcaatgtac cagatggtca cctatagcac       240
cagctccaga tggccacgtg gttgcagctg gactcaatga aactctgtga caaccagaag       300
atacctgctt tgggatgaga gggaggataa agccatgcag ggaggatatt taccatccct       360
accctaagca cagtgcaagc agtgagcccc cggctcccag tacctgaaaa accaaggcct       420
actgnctttt ggatgctctc ttgggccacg                                       450

      <210> 68
      <211> 511
      <212> DNA
      <213> Homo sapien

      <400> 68
aagcctcctg ccctggaaat ctggagcccc ttggagctga gctggacggg gcagggaggg        60
gctgagaggc aagaccgtct ccctcctgct gcagctgctt ccccagcagc cactgctggg       120
cacagcagaa acgccagcag agaaaatggg agccgagagt ccttagccct ggagctgagg       180
ctgcctctgg gctgacccgc tggctgtacg tggccagaac tggggttggc atctggcatc       240
catttgaggc cagggtggag gaaagggagg ccaacagagg aaaacctatt cctgctgtga       300
caacacagcc cttgtcccac gcagcctaag tgcaggagc gtgatgaagt caggcagcca       360
gtcggggagg acgaggtaac tcagcagcaa tgtcaccttg tagcctatgc gctcaatggc       420
ccggaggggc agcaacccc cgcacacgtc agccaacagc agtgcctctg caggcaccaa       480
gagagcgatg atggacttga gcgccgtgtt c                                     511

      <210> 69
      <211> 511
      <212> DNA
      <213> Homo sapien

      <400> 69
gtttggcaga agacatgttt aataacattt tcatatttaa aaaatacagc aacaattctc        60
tatctgtcca ccatcttgcc ttgcccttcc tggggctgag gcagacaaag gaaaggtaat       120
gaggttaggg cccccaggcg ggctaagtgc tattggcctg ctcctgctca aagagagcca       180
tagccagctg ggcacggccc cctagcccct ccaggttgct gaggcggcag cggtggtaga       240
gttcttcact gagccgtggg ctgcagtctc gcagggagaa cttctgcacc agccctggct       300
ctacggcccg aaagaggtgg agccctgaga accggaggaa aacatccatc acctccagcc       360
cctccagggc ttcctcctct tcctggcctg ccagttcacc tgccagccgg gctcgggccg       420
ccaggtagtc agcgttgtag aagcagccct ccgcaqaagc ctgccggtca aatctccccg       480
ctataggagc cccccgggag gggtcagcac c                                     511

      <210> 70
      <211> 511
      <212> DNA
      <213> Homo sapien
```

<400> 70

```
caagttgaac gtcaggcttg gcagaggtgg agtgtagatg aaaacaaagg tgtgattatg      60
aagaggatgt gagtcctttg ggtgtaggag agaaaggctg ttgagcttct atttcaagat     120
acttttacct gtgcaaaaag cacattttcc acctccttct catggcattt gtgtaaggtg     180
agtatgattc ctattccatc tgcattttag aggtgaagaa taacgtacaa gggattcagt     240
gattagcaag ggacccctca ctaagtgttg atggagttag gacagagctc agctgtttga     300
atctcagagc ccaggcagct ggagctgggt aggatcctgg agctggcact aatgtgaggt     360
gcattccctc caacccaggc tcagatccgg aacctgaccg tgctgacccc cgaagggag     420
gcagggctga gctggcccgt tgggctccct gctcctttca caccacactc tcgctttgag     480
gtgctggcct gggactactt cacagagcag c                                     511
```

    <210> 71
    <211> 511
    <212> DNA
    <213> Homo sapien

<400> 71

```
tggcctgggc aggattggga gagaggtagc tacccggatg cagtcctttg ggatgaagac      60
tatagggtat gaccccatca tttccccaga ggtctcggcc tcctttggtg ttcagcagct     120
gcccctggag gagatctggc ctctctgtga tttcatcact gtgcacactc ctctcctgcc     180
ctccacgaca ggcttgcctg atgacaacac ctttgcccag tgcaagaagg gggtgcgtgt     240
ggtgaactgt gcccgtggag ggatcgtgga cgaaggcgcc ctgctccggg ccctgcagtc     300
tggccagtgt gccggggctg cactggacgt gtttacggaa gagccgccac gggaccgggc     360
cttggtggac catgagaatg tcatcagctg tccccacctg ggtgccagca ccaggaggc     420
tcagagccgc tgtgggggagg aaattgctgt tcagttcgtg gacatggtga aggggaaatc     480
tctcacgggg gttgtgaatg cccaggccct t                                     511
```

    <210> 72
    <211> 2017
    <212> DNA
    <213> Homo sapien

<400> 72

```
agccagatgg ctgagagctg caagaagaag tcaggatcat gatggctcag tttcccacag      60
cgatgaatgg agggccaaat atgtgggcta ttacatctga agaacgtact aagcatgata     120
aacagtttga taacctcaaa ccttcaggag gttacataac aggtgatcaa gcccgtactt     180
ttttcctaca gtcaggtctg ccggcccgg ttttagctga aatatgggcc ttatcagatc     240
tgaacaagca tgggaagatg gaccagcaag agttctctat agctatgaaa ctcatcaagt     300
taaagttgca gggccaacag ctgcctgtag tcctccctcc tatcatgaaa caacccccta     360
tgttctctcc actaatctct gctcgttttg ggatgcccaat ctgtccattc                420
atcagccatt gcctccagtt gcacctatag caacacccct gtcttctgct acttcaggga     480
ccagtattcc tccctaatg atgcctgctc cctagtgcc ttctgttagt acatcctcat     540
taccaaatgg aactgccagt ctcattcagc ctttatccat tccttattct tcttcaacat     600
tgcctcatgc atcatcttac agcctgatga tgggaggatt tggtggtgct agtatccaga     660
aggcccagtc tctgattgat ttaggatcta gtagctcaac ttcctcaact gcttccctct     720
cagggaactc acctaagaca gggaccctcag agtgggcagt tcctcagcct tcaagattaa     780
agtatcggca aaaatttaat agtctagaca aaggcatgag cggataccts tcaggttttc     840
aagctagaaa tgcccttctt cagtcaaatc tctctcaaac tcagctagct actatttgga     900
ctctggctga catcgatggt gacggacagt tgaaagctga agaatttatt ctggcgatgc     960
acctcactga catggccaaa gctggacagc cactaccact gacgttgcct cccgagcttg    1020
tccctccatc tttcagaggg ggaaagcaag ttgattctgt taatggaact ctgccttcat    1080
atcagaaaac acaagaagaa gagcctcaga agaaactgcc agttactttt gaggacaaac    1140
ggaaagccaa ctatgaacga ggaaacatgg agctggagaa gcgacgccaa gtgttgatgg    1200
agcagcagca gagggaggct gaacgcaaag cccagaaaga gaaggaagag tgggagcgga    1260
aacagagaga actgcaagag caagaatgga agaagcagct ggagttggag aaacgcttgg    1320
```

```
agaaacagag agagctggag agacagcggg aggaagagag gagaaaggag atagaaagac    1380
gagaggcagc aaaacaggag cttgagagac aacgccgttt agaatgggaa agactccgtc    1440
ggcaggagct gctcagtcag aagaccaggg aacaagaaga cattgtcagg ctgagctcca    1500
gaaagaaaag tctccacctg gaactggaag cagtgaatgg aaaacatcag cagatctcag    1560
gcagactaca agatgtccaa atcagaaagc aaacacaaaa gactgagcta gaagttttgg    1620
ataaacagtg tgacctggaa attatggaaa tcaaacaact tcaacaagag cttaaggaat    1680
atcaaaataa gcttatctat ctggtccctg agaagcagct attaaacgaa agaattaaaa    1740
acatgcagct cagtaacaca cctgattcag ggatcagttt acttcataaa aagtcatcag    1800
aaaaggaaga attatgccaa agacttaaag aacaattaga tgctcttgaa aaagaaactg    1860
catctaagct ctcagaaatg gattcattta acaatcagct gaaggaactc agagaaagct    1920
ataatacaca gcagttagcc cttgaacaac ttcataaaat caaacgtgac aaattgaagg    1980
aaatcgaaag aaaaagatta gagcaaaaaa aaaaaaa                             2017
```

    <210> 73
    <211> 414
    <212> DNA
    <213> Homo sapien

    <400> 73

```
atggcagtga cattcaccat catgggaacc accttccctt ttcttcagga ttctctgtag     60
tggaagagag caaccagtgt tgggctgaaa acatctgaaa gtagggagaa gaacctaaaa    120
taatcagtat ctcagagggc tctaaggtgc caagaagtct cactggacat ttaagtgcca    180
acaaaggcat actttcggaa tcgccaagtc aaaacttttct aacttctgtc tctctcagag    240
acaagtgaga ctcaagagtc tactgcttta gtggcaacta cagaaaactg gtgttaccca    300
gaaaaacagg agcaattaga aatggttcca atatttcaaa gctccgcaaa caggatgtgc    360
tttcctttgc ccatttaggg tttcttctct ttcctttctc tttattaacc acta          414
```

    <210> 74
    <211> 1567
    <212> DNA
    <213> Homo sapien

    <400> 74

```
atatctagaa gtctggagtg agcaaacaag agcaagaaac aaaaagaagc caaaagcaga     60
aggctccaat atgaacaaga taaatctatc ttcaaagaca tattagaagt tgggaaaata    120
attcatgtga actagacaag tgtgttaaga gtgataagta aaatgcacgt ggagacaagt    180
gcatccccag atctcaggga cctcccctg cctgtcacct ggggagtgag aggacaggat    240
agtgcatgtt ctttgtctct gaattttag ttatatgtgc tgtaatgttg ctctgaggaa    300
gccccetggaa agtctatccc aacatatcca catcttatat tccacaaatt aagctgtagt    360
atgtacccta agacgctgct aattgactgc cacttcgcaa ctcaggggcg gctgcatttt    420
agtaatgggt caaatgattc actttttatg atgcttccaa aggtgccttg gcttctcttc    480
ccaactgaca aatgccaaag ttgagaaaaa tgatcataat tttagcataa acagagcagt    540
cggcgacacc gatttttataa ataaactgag caccttcttt ttaaacaaac aaatgcgggt    600
ttatttctca gatgatgttc atccgtgaat ggtccaggga aggacctttc accttgacta    660
tatggcatta tgtcatcaca agctctgagg cttctccttt ccatcctgcg tggacagcta    720
agacctcagt tttcaatagc atctagagca gtgggactca gctggggtga tttcgcccec    780
catctccggg ggaatgtctg aagacaattt tgttacctca atgagggagt gggaggaggat    840
acagtgctac taccaactag tggataaagg ccagggatgc tgctcaacct cctaccatgt    900
acaggacgtc tccccattac aactacccaa tccgaagtgt caactgtgtc aggactaaga    960
aaccctggtt ttgagtagaa aagggcctgg aaagaggggga gccaacaaat ctgtctgctt   1020
cctcacatta gtcattggca aataagcatt ctgtctcttt ggctgctgcc tcagcacaga   1080
gagccagaac tctatcgggc accaggataa catctctcag tgaacagagt tgacaaggcc   1140
tatgggaaat gcctgatggg attatcttca gcttgttgag cttctaagtt tctttccctt   1200
cattctaccc tgcaagccaa gttctgtaag agaaatgcct gagttctagc tcaggttttc   1260
ttactctgaa tttagatctc cagacccttc ctggccacaa ttcaaattaa ggcaacaaac   1320
```

```
atataccttc catgaagcac acacagactt ttgaaagcaa ggacaatgac tgcttgaatt      1380
gaggccttga ggaatgaagc tttgaaggaa aagaatactt tgtttccagc ccccttccca      1440
cactcttcat gtgttaacca ctgccttcct ggaccttgga gccacggtga ctgtattaca      1500
tgttgttata gaaaactgat tttagagttc tgatcgttca agagaatgat taaatataca      1560
tttccta                                                                 1567
```

```
        <210> 75
        <211> 240
        <212> DNA
        <213> Homo sapien
```

```
        <400> 75
tcgagcggcc gcccgggcag gtccttcaga cttggactgt gtcacactgc caggcttcca        60
gggctccaac ttgcagacgg cctgttgtgg gacagtctct gtaatcgcga aagcaaccat       120
ggaagacctg gggggaaaaca ccatggtttt atccaccctg agatctttga acaacttcat      180
ctctcagcgt gcggagggag gctctggact ggatatttct acctcggccg cgaccacgct       240
```

```
        <210> 76
        <211> 330
        <212> DNA
        <213> Homo sapien
```

```
        <220>
        <221> misc_feature
        <222> (1)...(330)
        <223> n = A,T,C or G
```

```
        <400> 76
tagcgyggtc gcggccgagg yctgcttytc tgtccagccc agggcctgtg gggtcagggc        60
ggtgggtgca gatggcatcc actccggtgg cttccccatc tttctctggc ctgagcaagg       120
tcagcctgca gccagagtac agagggccaa cactggtgtt cttgaacaag ggccttagca       180
ggccctgaag grccctctct gtagtgttga acttcctgga gccaggccac atgttctcct       240
cataccgcag gytagygatg gtgaagttga gggtgaaata gtattmangr agatggctgg       300
caracctgcc cgggcggccg ctcsaaatcc                                        330
```

```
        <210> 77
        <211> 361
        <212> DNA
        <213> Homo sapien
```

```
        <400> 77
agcgtggtcg cggccgaggt gtccttcagg gtctgcttat gcccttgttc aagaacacca        60
gtgtcagctc tctgtactct ggttgcagac tgaccttgct caggcctgag aaggatgggg       120
cagccaccag agtggatgct gtctgcaccc atcgtcctga ccccaaaagc cctggactgg       180
acagagagcg gctgtactgg aagctgagcc agctgaccca cggcatcact gagctgggcc       240
cctacaccct ggacagggac agtctctatg tcaatggttt cacccatcgg agctctgtac       300
ccaccaccag caccggggtg gtcagcgagg agccattcaa cctgcccggg cggccgctcg       360
a                                                                       361
```

```
        <210> 78
        <211> 356
        <212> DNA
        <213> Homo sapien
```

```
        <220>
```

```
        <221> misc_feature
        <222> (1)...(356)
        <223> n = A,T,C or G

        <400> 78
ttggggnttt mgagcggccg cccgggcagg taccggggtg gtcagcgagg agccattcac       60
actgaacttc accatcaaca acctgcggta tgaggagaac atgcagcacc ctggctccag      120
gaagttcaac accacggaga gggtccttca gggcctgctc aggtccctgt tcaagagcac      180
cagtgttggc cctctgtact ctggctgcag actgactttg ctcagacttg agaaacatgg      240
ggcagccact ggagtggacg ccatctgcac cctccgcctt gatcccactg gtcctggact      300
ggacagagag cggctatact gggagctgag ccagtcctct ggcggngacn ccnctt         356


        <210> 79
        <211> 226
        <212> DNA
        <213> Homo sapien


        <400> 79
agcgtggtcg cggccgaggt ccagtcgcag catgctcttt ctcctgccca ctggcacagt       60
gaggaagatc tctgctgtca gtgagaaggc tgtcatccac tgagatggca gtcaaaagtg      120
catttaatac acctaacgta tcgaacatca tagcttggcc caggttatct catatgtgct      180
cagaacactt acaatagcct gcagacctgc ccgggcggcc gctcga                    226


        <210> 80
        <211> 444
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(444)
        <223> n = A,T,C or G


        <400> 80
tgtggtgttg aacttcctgg agncagggtg accatgtcc tccccatact gcaggttggt        60
gatggtgaag ttgagggtga atggtaccag gagagggcca gcagccataa ttgtsgrgck      120
gsmgmssgag gmwggwgtyy cwgaggttcy rarrtccact gtggaggtcc caggagtgct      180
ggtggtgggc acagagstcy gatgggtgaa accattgaca tagagactgt tcctgtccag      240
ggtgtagggg cccagctctt yratgycatt ggycagttkg ctyagctccc agtacagccr      300
ctctckgyyg mqwccagsgc ttttggggtc aagatgatgg atgcagatgg catccactcc      360
agtggctgct ccatccttct cggacctgag agaggtcagt ctgcagccag agtacagagg      420
gccaacactg gtgttctttg aata                                            444


        <210> 81
        <211> 310
        <212> DNA
        <213> Homo sapien


        <400> 81
tcgagcggcc gcccgggcag gtcaggaagc acattggtct tagagccact gcctcctgga        60
ttccacctgt gctgcggaca tctccaggga gtgcagaagg gaagcaggtc aaactgctca      120
gatcagtcag actggctgtt ctcagttctc acctgagcaa ggtcagtctg cagccagagt      180
acagagggcc aacactggtg ttcttgaaca agggcttgag cagaccctgc agaaccctct      240
tccgtggtgt tgaacttcct ggaaaccagg gtgttgcatg tttttcctca taatgcaagg      300
ttggtgatgg                                                            310
```

```
     <210> 82
     <211> 571
     <212> DNA
     <213> Homo sapien

     <220>
     <221> misc_feature
     <222> (1)...(571)
     <223> n = A,T,C or G

     <400> 82
acggtttcaa tggacacttt tattgtttac ttaatggatc atcaattttg tctcactacc      60
tacaaatgga atttcatctt gtttccatgc tgagtagtga aacagtgaca aagctaatca     120
taataaccta catcaaaaga gaactaagct aacactgctc actttctttt taacaggcaa     180
aatataaata tatgcactct anaatgcaca atggtttagt cactaaaaaa ttcaaatggg     240
atcttgaaga atgtatgcaa atccagggtg cagtgaagat gagctgagat gctgtgcaac     300
tgtttaaggg ttcctggcac tgcatctctt ggccactagc tgaatcttga catggaaggt     360
tttagctaat gccaagtgga gatgcagaaa atgctaagtt gacttagggg ctgtgcacag     420
gaactaaaag gcaggaaagt actaaatatt gctgagagca tccacccccag gaaggacttt   480
accttccagg agctccaaac tggcaccacc cccagtgctc acatggctga ctttatcctc     540
cgtgttccat ttggcacagc aagtggcagt g                                     571

     <210> 83
     <211> 551
     <212> DNA
     <213> Homo sapien

     <400> 83
aaggctggtg ggttttttgat cctgctggag aacctccgct ttcatgtgga ggaagaaggg     60
aagggaaaag atgcttctgg gaacaaggtt aaagccgagc cagccaaaat agaagctttc     120
cgagcttcac tttccaagct agggggatgtc tatgtcaatg atgctttatgg cactgctcac    180
agagcccaca gctccatggt aggagtcaat ctgccacaga aggctggtgg gttttttgatg     240
aagaaggagc tgaactactt tgcaaaggcc ttggagagcc cagagcgacc cttcctggcc      300
atcctgggcg gagctaaagt tgcagacaag atccagctca tcaataatat gctggacaaa      360
gtcaatgaga tgattattgg tggtggaatg gctttttaccct tccttaaggt gctcaacaac    420
atggagattg gcacttctct gtttgatgaa gaggagcca agattgtcaa agacctaatg       480
tccaaagctg agaagaatgg tgtgaagatt accttgcctg ttgactttgt cactgctgac     540
aagtttgatg a                                                            551

     <210> 84
     <211> 571
     <212> DNA
     <213> Homo sapien

     <400> 84
tttgttcctt acattttttct aaagagttac ttaaatcagt caactggtct ttgagactct     60
taagttctga ttccaactta gctaattcat tctgagaact gtggtatagg tggcgtgtct     120
cttctagctg ggacaaaagt tctttgtttt cccctgtag agtatcacag accttctgct       180
gaagctggac ttctgtctgg gccttggact cccaaatctg cttgtcatgt tcaagcctgg     240
aaatgttaat ctttaattct tccatatgga tggacatctg tctaagttga tcctttagaa     300
cactgcaatt atcttctttg agtctaattt cttcttcttt gcttgaatc gcatcactaa      360
acttcctctc ccatttctta gcttcatcta tcaccctgtc acgatcatcc tggagggaag     420
acatgctctt agtaaaggct gcaagctggg tcacagtact gtccaagttt tcctgaagtt      480
gctgaacttc cttgtctttc ttgttcaaag taacctgaat ctctccaatt gtctcttcca     540
```

```
agtggacttt ttctctgcgc aaagcatcca g                                          571
```

```
        <210> 85
        <211> 561
        <212> DNA
        <213> Homo sapien

        <400> 85
tcattgcctg tgatggcatc tggaatgtga tgagcagcca ggaagttgta gatttcattc          60
aatcaaagga ttcagcatgt ggtggaagct gtgaggcaag agaaacaaga actgtatggc         120
aagttaacaa gcacagaggc aaacaagaag gagacagaaa agcagttgca ggaagctgag         180
caagaaatgg aggaaatgaa agaaaagatg agaaagtttg ctaaatctaa acagcagaaa         240
atcctagagc tggaagaaga gaatgaccgg cttagggcag aggtgcaccc tgcaggagat         300
acagctaaag agtgtatgga aacacttctt tcttccaatg ccagcatgaa ggaagaactt         360
gaaagggtca aaatggagta tgaaaccctt tctaagaagt ttcagtcttt aatgtctgag         420
aaagactctc taagtgaaga ggttcaagat ttaaagcatc agatagaagg taatgtatct         480
aaacaagcta acctagaggc caccgagaaa catgataacc aaacgaatgt cactgaagag         540
ggaacacagt ctataccagg t                                                    561
```

```
        <210> 86
        <211> 795
        <212> DNA
        <213> Homo sapien

        <400> 86
aagccaataa tcaccattta ttacttaata tatgccaacc actgtacttg gcagttcaca          60
aattctcacc gttacaacaa ccccatgagg tatttattcc cattctatag ataggggaaac        120
cacagctcaa gtaagttagg aaactgagcc aagtatacac agaatacgaa gtggcaaaac         180
tagaaggaaa gactgacact gctatctgct ggcctccagt gtcctggctc ttttcacacg         240
ggttcaatgt ctccagcgct gctgctgctg ctgcattacc atgccctcat tgtttttctt         300
cctctggtgt tcaactgcat ccttcaaaga atctaactca ttccagagac cacttatttc         360
tttctctctt tctgaaatta cttttaataa ttcttcatga gggggaaaag aagatgcctg         420
ttggtagttt tgttgtttaa gctgctcaat ttgggactta aacaatttgt tttcatcttg         480
tacatcctgt aacagctgtg tttgctaga aagatcactc tccctctctt ttagcatggc         540
ttctaacctc ttcaattcat tttccttttc tttcaacaca atctcaagtt cttcaaactg         600
tgatgcagaa gaggcctctt tcaagttatg ttgtgctact tcctgaacat gtgctttaa         660
agattcattt tcttcttgaa gatcctgtaa ccacttccct gtattggcta ggtctttctc         720
tttctcttcc aaaacagcct tcatggtatt catctgttcc tcttttcctt ttaataagtt         780
caggagcttc agaac                                                          795
```

```
        <210> 87
        <211> 594
        <212> DNA
        <213> Homo sapien

        <400> 87
caagcttttt ttttttttt aaaaagtgtt agcattaatg ttttattgtc acgcagatcg          60
caactgggtt tatgtcttca tattttatat ttttgtaaat taaaaaaatt acaagtttta         120
aatagccaat ggctggttat attttcagaa aacatgatta gactaattca ttaatggtgg         180
cttcaagctt ttccttattg gctccagaaa attcaccac cttttgtccc ttcttaaaaa         240
actggaatgt tggcatgcat ttgacttcac actctgaagc aacatcctga cagtcatcca         300
catctacttc aaggaatatc acgttggaat acttttcaga gagggaatga aagaaaggct         360
tgatcatttt gcaaggccca caccacgtgg ctgagaagtc aactactaca agtttatcac         420
ctgcagcgtc caaggcttcc tgaaaagcag tcttgctctc gatctgcttc accatcttgg         480
ctgctggagt ctgacgagcg gctgtaagga ccgatggaaa tggatccaaa gcaccaaaca         540
```

```
gagcttcaag actcgctgct tggcttgaat tcggatccga tatcgccatg gcct              594

     <210> 88
     <211> 557
     <212> DNA
     <213> Homo sapien

     <400> 88
aagtgttagc attaatgttt tattgtcacg cagatggcaa ctgggtttat gtcttcatat        60
tttatatttt tgtaaattaa aaaaattmca agttttaaat agccaatggc tggttatatt        120
ttcagaaaac atgattagac taattcatta atggtggctt caagcttttc cttattggct        180
ccagaaaatt cacccacctt ttgtcccttc ttaaaaaact ggaatgttgg catgcatttg        240
acttcacact ctgaagcaac atcctgacag tcatccacat ctacttcaag gaatatcacg        300
ttggaatact tttcagagag ggaatgaaag aaaggcttga tcattttgca aggcccacac        360
cacgtggctg agaagtcaac tactacaagt ttatcacctg cagcgtccaa ggcttcctga        420
aaagcagtct tgctctcgat ctgcttcacc atcttggctg ctggagtctg acgagcggct        480
gtaaggaccg atggaaatgg atccaaagca ccaaacagag cttcaagact cgctgcttgg        540
catgaattcg gatccga                                                       557

     <210> 89
     <211> 561
     <212> DNA
     <213> Homo sapien

     <220>
     <221> misc_feature
     <222> (1)...(561)
     <223> n = A,T,C or G

     <400> 89
tacaaacttt attgaaacgc acacgcgcac acacacaaac acccctgtgg atagggaaaa        60
gcacctggcc acagggtcca ctgaaacggg gaggggatgg cagcttgtaa tgtggctttt        120
gccacaacce ccttctgaca gggaaggcct tagattgagg ccccacctcc catggtgatg        180
gggagctcag aatgggggtcc agggagaatt tggttagggg gaggtgctag ggaggcatga        240
gcagagggca ccctccgagt ggggtcccga gggctgcaga gtcttcagta ctgtccctca        300
cagcagctgt ctcaaggctg ggtccctcaa aggggcgtcc cagcgcgggg cctccctgcg        360
caaacacttg gtacccctgg ctgcgcagcg gaagccagca ggacagcagt ggcgccgatc        420
agcacaacag acgccctggc ggtagggaca gcaggcccag ccctgtcggt tgtctcggca        480
gcaggtctgg ttatcatggc agaagtgtcc ttcccacact tcacgtcctt cacacccacg        540
tganggctac nggccaggaa g                                                  561

     <210> 90
     <211> 561
     <212> DNA
     <213> Homo sapien

     <400> 90
cccgtgggtg ccatccacgg agttgttacc tgatctttgg aagcaggatc gcccgtctgc        60
actgcagtgg aagccccgtg ggcagcagtg atggccatcc ccgcatgcca cggcctctgg        120
gaaggggcag caactggaag tccctgagac ggtaaagatg caggagtggc cggcagagca        180
gtgggcatca acctggcagg ggccacccag atgcctgctc agtgttgtgg gccatttgtc        240
cagaagggga cggcagcagc tgtagctggc tcctccgggg tccaggcagc aggccacagg        300
gcagaactga ccatctgggc accgcgttcc agccaccagc cctgctgtta aggccaccca        360
gctcaccagg gtccacatgg tctgcctgcg tccgactccg cggtccttgg gccctgatgg        420
ttctacctgc tgtgagctgc ccagtgggaa gtatggctgc tgccaatgcc caacgccacc        480
```

```
tgctgcttcg atcacctgca ctgctgcccc aagacactgt gtgtgacctg atccagagta      540
agtgcctctc caaggagaac g                                                561
```

```
        <210> 91
        <211> 541
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(541)
        <223> n = A,T,C or G

        <400> 91
gaatcacctt tctggtttag ctagtacttt gtacagaaca atgaggtttc ccacagcgga       60
gtctccctgg gctctgtttg gctctcggta aggcaggcct acaccttttc ctctcctcta      120
tggagagggg aatatgcatt aaggtgaaaa gtcaccttcc aaaagtgaga aagggattcg      180
attgctgctt caggactgtg gaattatttg gaatgtttta caaatggttg ctacaaaaca      240
acaaaaaagg taattacaaa atgtgtacat cacaacatgc tttttaaaga cattatgcat      300
tgtgctcaca ttcccttaaa tgttgtttcc aaaggtgctc agcctctagc ccagctggat      360
tctccgggaa gaggcagaga cagtttggcg aaaaagacac agggaaggag ggggtggtga      420
aaggagaaag cagccttcca gttaaagatc agccctcagt taaaggtcag cttccagcan      480
gctggcctca ngcggagtct gggtcagagg gaggagcagc agcagggtgg gactggggcg      540
t                                                                      541
```

```
        <210> 92
        <211> 551
        <212> DNA
        <213> Homo sapien

        <400> 92
aaccggagcg cgagcagtag ctgggtcggc accatggctg ggatcaccac catcgaggcg       60
gtgaagcgca agatccaggt tctgcagcag caggcagatg atgcagagga gcgagctgag      120
cgcctccagc gagaagttga ggagaaaagg cgggcccggg aacaggctga ggctgaggtg      180
gcctccttga accgtaggat ccagctggtt gaagaagagc tggaccgtgc tcaggagcgc      240
ctggccactg ccctgcaaaa gctggaagaa gctgaaaaag ctgctgatga gagtgagaga      300
ggtatgaagg ttattgaaaa ccgggcctta aaagatgacg aaaagatgga actccacgaa      360
atccaactca aacaagctaa gcacattgca gaagaggcag ataggaagta tgaagaggtg      420
gctcgtaagt tggtgatcat tgaaggagac ttggaacgca cagaggaacg agctgagctg      480
gcagagtccc gttgccgaga gatggatgag cagattagac tgatggacca gaacctgaag      540
tgtctgagtg c                                                          551
```

```
        <210> 93
        <211> 531
        <212> DNA
        <213> Homo sapien

        <400> 93
gagaacttgg cctttattgt gggcccagga gggcacaaag gtcaggaggc ccaagggagg       60
gatctggttt tctggatagc caggtcatag catgggtatc agtaggaatc cgctgtagct      120
gcacaggcct cacttgctgc agttccgggg agaacacctg cactgcatgg cgttgatgac      180
ctcgtggtac acgacagagc cattggtgca gtgcaagggc acgcgcatgg gctccgtcct      240
cgagggcagg cagcaggagc attgctcctg cacatcctcg atgtcaatgg agtacacagc      300
tttgctggca cactttccct ggcagtaatg aatgtccact tcctcttggg acttacaatc      360
tcccactttg atgtactgca ccttggctgt gatgtctttg caatcaggct cctcacatgt      420
```

```
gtcacagcag gtgcctggaa ttttcacgat tttgcctcct tcagccagac acttgtgttc      480
atcaaatggt gggcagcccg tgaccctctt ctcccagatg tactctcctc t              531
```

        <210> 94
        <211> 531
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(531)
        <223> n = A,T,C or G

        <400> 94
```
gcctggacct tgccggatca gtgccacaca gtgacttgct tggcaaatgg ccagaccttg      60
ctgcagagtc atcgtgtcaa ttgtgaccat ggaccccggc cttcatgtgc caacagccag     120
tctcctgttc gggtggagga gacgtgtggc tgccgctgga cctgcccttg tgtgtgcacg     180
ggcagttcca ctcggcacat cgtcaccttc gatgggcaga atttcaagct tactggtagc     240
tgctcctatg tcatctttca aaacaaggag caggacctgg aagtgctcct ccacaatggg     300
gcctgcagcc ccggggcaaa acaagcctgc atgaagtcca ttgagattaa gcatgctggc     360
gtctctgctg agctgcacag taacatggag atggcagtgg atgggagact ggtccttgcc     420
ccgtacgttg gtgaaaacat ggaagtcagc atctacggcg ctatcatgta tgaagtcagg     480
tttacccatc ttggccacat cctcacatac accgccncaa aacaacgagt t              531
```

        <210> 95
        <211> 605
        <212> DNA
        <213> Homo sapien

        <400> 95
```
agatcaacct ctgctggtca ggaggaatgc cttccttgtc ttggatcttt gctttgacgt      60
tctcgatagt rwcaactkkr ytsramskma agkgyratgr wmttksywgw rasyktmwwm     120
rsgraraytt agacaycccm cctcwgagac gsagkaccar gtgcagaggt ggactctttc     180
tggatgttgt agtcagacag ggtgcgtcca tcttccagct gtttcccagc aaagatcaac     240
ctctgctgat caggagggat gccttcctta tcttggatct ttgccttgac attctcgatg     300
gtgtcactgg gctccacctc gagggtgatg gtcttaccag rcagggtctt cacgaagaty     360
tgcatcccac ctctgagacg gagcaccagg tgcagggtrg actctttctg gatgttgtag     420
tcagacaggg tgcgyccatc ttccagctgc tttccsagca aagatcaacc tctgctggtc     480
aggaggratg ccttccttgt cytggatctt tgcyttgacr ttctcratgg tgtcactcgg     540
ctccacttcg agagtgatgg tcttaccagt cagggtcttc acgaagatct gcatcccacc     600
tctaa                                                                  605
```

        <210> 96
        <211> 531
        <212> DNA
        <213> Homo sapien

        <400> 96
```
aagtcacaaa cagacaaaga ttattaccag ctgcaagcta tattagaagc tgaacgaaga      60
gacagaggtc atgattctga gatgattgga gaccttcaag ctcgaattac atctttacaa     120
gaggaggtga agcatctcaa acataatctc gaaaaagtgg aaggagaaag aaaaagaggct     180
caagacatgc ttaatcactc agaaaaggaa aagaataatt tagagataga tttaaactac     240
aaacttaaat cattacaaca acggttagaa caagaggtaa atgaacacaa agtaaccaaa     300
gctcgtttaa ctgacaaaca tcaatctatt gaagaggcaa agtctgtggc aatgtgtgag     360
atggaaaaaa agctgaaaga agaaagagaa gctcgagaga aggctgaaaa tcgggttgtt     420
```

```
cagattgaga aacagtgttc catgctagac gttgatctga agcaatctca gcagaaacta        480
gaacatttga ctggaaataa agaaaggatg gaggatgaag ttaagaatct a                531
```

        <210> 97
        <211> 1017
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(1017)
        <223> n = A,T,C or G

        <400> 97

```
cgcctccacc atgtccatca gggtgaccca gaagtcctac aaggtgtcca cctctggccc         60
ccgggccttc agcagccgct cctacacgag tgggcccggt tcccgcatca gctcctcgag        120
cttctcccga gtgggcagca gcaactttcg cggtggcctg ggcggcggct atggtggggc        180
cagcggcatg ggaggcatca ccgcagttac ggtcaaccag agcctgctga gcccccttgt        240
cctggaggtg gaccccaaca tccaggccgt gcgcacccag gagaaggagc agatcaagac        300
cctcaacaac aagtttgcct ccttcataga caaggtacgg ttcctggagc agcagaacaa        360
gatgctggag accaagtgga gcctcctgca gcagcagaag acggctcgaa gcaacatgga        420
caacatgttc gagagctaca tcaacarcct taggcggcag ctggagactc tgggccagga        480
gaagctgaag ctggaggcgg agcttggcaa catgcagggg ctggtggagg acttcaagaa        540
caagtatgag gatgagatca ataagcgtac agagatggag aacgaatttg tcctcatcaa        600
gaaggatgtg gatgaagctt acatgaacaa ggtagagctg gagtctcgcc tggaagggct        660
gaccgacgag atcaacttcc tcaggcagct gtatgaagag gagatccggg agctgcagtc        720
ccagatctcg gacacatctg tggtgctgtc catggacaac agccgctccc tggacatgga        780
cagcatcatt gctgaggtca aggcacagta cgaggatatt gccaaccgca gccgggctga        840
ggctgagagc atgtaccagg tcaagtatga ggagctgcag agcctggctg ggaagcacgg        900
ggatgacctg cggcgcacaa agactgagat ctctcagatg aacccggaac atcagcccgg        960
ctncaggctg agattgaggg cctcaaaggc caganggctt ncctggangn ccgccat       1017
```

        <210> 98
        <211> 561
        <212> DNA
        <213> Homo sapien

        <400> 98

```
cccggagcca gccaacgagc ggaaaatggc agacaatttt tcgctccatg atgcgttatc         60
tgggtctgga aacccaaacc ctcaaggatg gcctggcgca tgggggaacc agcctgctgg        120
ggcaggggc tacccagggg cttcctatcc tggggcctac cccgggcagg cacccccagg        180
ggcttatcct ggacaggcac ctccaggcgc ctaccctgga gcacctggag cttatcccgg        240
agcacctgca cctggagtct acccaggacc acccagcggc cctgggcct acccatcttc        300
tggacagcca agtgccaccg gagcctaccc tgccactggc ccctatggcg ccctgctgg        360
gccactgatt gtgccttata acctgccttt gcctggggga gtggtgcctc gcatgctgat        420
aacaattctg ggcacggtga gcccaatgc aaacagaatt gctttagatt tccaaagagg        480
gaatgatgtt gccttccact ttaacccacg cttcaatgag aacaacagga gagtcattgg        540
ttgcaataca aagctggata a                                                  561
```

        <210> 99
        <211> 636
        <212> DNA
        <213> Homo sapien

        <400> 99

```
gggaatgcaa caactttatt gaaaggaaag tgcaatgaaa tttgttgaaa ccttaaaagg      60
ggaaacttag acaccccccc tcragcgmag kaccargtgc araggtggac tctttctgga     120
tgttgtagtc agacagggtr cgwccatctt ccagctgttt yccrgcaaag atcaacctct     180
gctgatcagg aggratgcct tccttatctt ggatctttgc cttgacattc tcgatggtgt     240
cactgggctc cacctcgagg gtgatggtct taccagtcag ggtcttcacg aagatytgca     300
tcccacctct gagacggagc accaggtgca gggtrgactc tttctggatg ttgtagtcag     360
acagggtgcg yccatcttcc agctgctttc csagcaaaga tcaacctctg ctggtcagga     420
ggratgcctt ccttgtcytg gatctttgcy ttgacrttct caatggtgtc actcggctcc     480
acttcgagag tgatggtctt accagtcagg gtcttcacga agatctgcat cccacctcta     540
agacggagca ccaggtgcag ggtggactct ttctggatgg ttgtagtcag acagggtgcg     600
tccatcttcc agctgtttcc cagcaaagat caacct                               636
```

```
        <210> 100
        <211> 697
        <212> DNA
        <213> Homo sapien

        <400> 100
aggttgatct ttgctgggaa acagctggaa gatggacgca ccctgtctga ctacaaccat      60
ccagaaagag tccaccctgc acctggtgct ccgtcttaga ggtgggatgc agatcttcgt     120
gaagaccctg actggtaaga ccatcactnt cgaagtggag ccgagtgaca ccattgagaa     180
ygtcaargca aagatccarg acaaggaagg catycctcct gaccagcaga ggttgatctt     240
tgctsggaaa gcagctggaa gatggrcgca ccctgtctga ctacaacatc cagaaagagt     300
cyaccctgca cctggtgctc cgtctcagag gtgggatgca ratcttcgtg aagaccctga     360
ctggtaagac catcaccctc gaggtggagc ccagtgacac catcgagaat gtcaaggcaa     420
agatccaaga taaggaaggc atccctcctg atcagcagag gttgatcttt gctgggaaac     480
agctggaaga tggacgcacc ctgtctgact acaacatcca gaaagagtcc acctytgcac     540
ytggtmctbc gtctyagagg kgggrtccaa atctwmgtkw agacactcac tkkyaagryy     600
atcamcmwtg akktcgakys castkwcact wtcrakaamg tyrwwgcawa catccmagac     660
aaggaaggca ttcctcctga ccagcagagg ttgatct                              697
```

```
        <210> 101
        <211> 451
        <212> DNA
        <213> Homo sapien

        <400> 101
atggagtctc actctgtcga ccaggctgga gcgctgtggt gcgatatcgg ctcactgcag      60
tctccacttc ctgggttcaa gcgatcctcc tgcctcagcc tcccgagtag ctgggactac     120
aggcaggcgt caccataatt tttgtatttt tagtagagac atggtttcgc catgttggct     180
gggctggtct cgaactcctg acctcaagtg atctgtcctg gcctcccaaa gtgttgggat     240
tacaggcgaa agccaacgct cccggccagg gaacaacttt agaatgaagg aaatatgcaa     300
aagaacatca catcaaggat caattaatta ccatctatta attactatat gtgggtaatt     360
atgactattt cccaagcatt ctacgttgac tgcttgagaa gatgtttgtc ctgcatggtg     420
gagagtggag aagggccagg attcttaggt t                                    451
```

```
        <210> 102
        <211> 571
        <212> DNA
        <213> Homo sapien

        <400> 102
agcgcggtct tccggcgcga gaaagctgaa ggtgatgtgg ccgccctcaa ccgacgcatc      60
cagctcgttg aggaggagtt ggacagggct caggaacgac tggccacggc cctgcagaag     120
ctggaggagg cagaaaaagc tgcagatgag agtgagagag gaatgaaggt gatagaaaac     180
```

```
cgggccatga aggatgagga gaagatggag attcaggaga tgcagctcaa agaggccaag        240
cacattgcgg aagaggctga ccgcaaatac gaggaggtag ctcgtaagct ggtcatcctg        300
gaggtgagc tggagagggc agaggagcgt gcggaggtgt ctgaactaaa atgtggtgac         360
ctggaagaag aactcaagaa tgttactaac aatctgaaat ctctggaggc tgcatctgaa        420
aagtattctg aaaaggagga caaatatgaa gaagaaatta aacttctgtc tgacaaactg        480
aaagaggctg agacccgtgc tgaatttgca gagagaacgg ttgcaaaact ggaaaagaca        540
attgatgacc tggaagagaa acttgcccag c                                       571
```

```
        <210> 103
        <211> 451
        <212> DNA
        <213> Homo sapien


        <400> 103
gtgcacaggt cccatttatt gtagaaaata ataataatta cagtgatgaa tagctcttct         60
taaattacaa aacagaaacc acaagaagg aagaggaaaa accccaggac ttccaagggt         120
gaagctgtcc cctcctccct gccaccctcc caggctcatt agtgtccttg gaaggggcag        180
aggactcaga ggggatcagt ctccaggggc cctgggctga agcgggtgag gcagagagtc        240
ctgaggccac agagctgggc aacctgagcc gcctctctgg cccccctccc caccactgcc        300
caaacctgtt tacagcacct tcgcccctcc cctctaaacc cgtccatcca ctctgcactt        360
cccaggcagg tgggtgggcc aggcctcagc catactcctg ggcgcgggtt tcggtgagca        420
aggcacagtc ccagaggtga tatcaaggcc t                                       451
```

```
        <210> 104
        <211> 441
        <212> DNA
        <213> Homo sapien


        <400> 104
gcaaggaact ggtctgctca cacttgctgg cttgcgcatc aggactggct ttatctcctg         60
actcacggtg caaaggtgca ctctgcgaac gttaagtccg tccccagcgc ttggaatcct        120
acggccccca cagccggatc ccctcagcct tccaggtcct caactcccgt ggacgctgaa        180
caatggcctc catggggcta caggtaatgg gcatcgcgct ggccgtcctg ggctggctgg        240
ccgtcatgct gtgctgcgcg ctgcccatgt ggcgcgtgac ggccttcatc ggcagcaaca        300
ttgtcacctc gcagaccatc tgggagggcc tatggatgaa ctgcgtggtg cagagcaccg        360
gccagatgca gtgcaaggtg tacgactcgc tgctggcact gccgcaggac ctgcaggcgg        420
cccgcgccct cgtcatcatc a                                                   441
```

```
        <210> 105
        <211> 509
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(509)
        <223> n = A,T,C or G

        <400> 105
tgcaaaaggg acacaggggt tcaaaaataa aaatttctct tcccccctccc caaacctgta        60
ccccagctcc ccgaccacaa cccccttcct ccccgggga aagcaagaag gagcaggtgt         120
ggcatctgca gctgggaaga gagaggccgg ggaggtgccg agctcggtgc tggtctcttt        180
ccaaatataa atacntgtgt cagaactgga aaatcctcca gcacccacca cccaagcact        240
ctccgttttc tgccggtgtt tggagagggg cggggggcag gggcgccagg caccggctgg        300
ctgcggtcta ctgcatccgc tgggtgtgca ccccgcgagc ctcctgctgc tcattgtaga        360
```

```
agagatgaca ctcggggtcc ccccggatgg tggggctcc ctggatcagc ttcccggtgt      420
tggggttcac acaccagcac tccccacgct gcccgttcag agacatcttg cactgtttga      480
ggttgtacag gccatgcttg tcacagttg                                        509
```

```
        <210> 106
        <211> 571
        <212> DNA
        <213> Homo sapien

        <400> 106
gggttggagg gactggttct ttatttcaaa aagacacttg tcaatattca gtatcaaaac       60
agttgcacta ttgatttctc tttctcccaa tcggccccaa agagaccaca taaaaggaga      120
gtacatttta agccaataag ctgcaggatg tacacctaac agacctccta gaaaccttac      180
cagaaaatgg ggactgggta gggaaggaaa cttaaaagat caacaaactg ccagcccacg      240
gactgcagag gctgtcacag ccagatgggg tggccagggt gccacaaacc caaagcaaag      300
tttcaaaata atataaaatt taaaaagttt tgtacataag ctattcaaga tttctccagc      360
actgactgat acaaagcaca attgagatgg cacttctaga gacagcagct tcaaacccag      420
aaaaggggtga tgagatgagt ttcacatggc taaatcagtg gcaaaaacac agtcttcttt      480
ctttctttct ttcaaggagg caggaaagca attaagtggt cacctcaaca taaggggggac      540
atgatccatt ctgtaagcag ttgtgaaggg g                                     571
```

```
        <210> 107
        <211> 555
        <212> DNA
        <213> Homo sapien

        <400> 107
caggaaccgg agcgcgagca gtagctgggt gggcaccatg gctgggatca ccaccatcga       60
ggcggtgaag cgcaagatcc aggttctgca gcagcaggca gatgatgcag aggagcgagc      120
tgagcgcctc cagcgagaag ttgagggaga aagccgggcc cgggaacagg ctgaggctga      180
ggtggcctcc ttgaaccgta ggatccagct ggttgaagaa gagctggacc gtgctcagga      240
gcgcctggcc actgccctgc aaaagctgga agaagctgaa aaagctgctg atgagagtga      300
gagaggtatg aaggttattg aaaaccgggc cttaaaagat gaagaaaaga tggaactcca      360
ggaaatccaa ctcaaagaag ctaagcacat tgcagaagag gcagatagga agtatgaaga      420
ggtggctcgt aagttggtga tcattgaagg agacttggaa cgcacagagg aacgagctga      480
gctggcagag tcccgttgcc gagagatgga tgagcagatt agactgatgg accagaacct      540
gaagtgtctg agtgc                                                       555
```

```
        <210> 108
        <211> 541
        <212> DNA
        <213> Homo sapien

        <400> 108
atctacgtca tcaatcaggc tggagacacc atgttcaatc gagctaagct gctcaatatt       60
ggctttcaag aggccttgaa ggactatgat tacaactgct ttgtgttcag tgatgtggac      120
ctcattccga tggacgaccg taatgcctac aggtgttttt cgcagccacg gcacatttct      180
gttgcaatcg acaagttcgg gtttagcctg ccatatgttc agtattctgg aggtgtctct      240
gctctcagta aacaacagtt tcttgccatc aatggattcc ctaataatta ttgggggttgg      300
ggaggagaag atgacgacat ttttaacaga ttagttcata aaggcatgtc tatatcacgt      360
ccaaatgctg tagtagggag gtgtcgaatg atccggcatt caagagacaa gaaaaatgag      420
cccaatcctc agaggtttga ccggatcgca catacaaagg aaacgatgcg cttcgatggt      480
ttgaactcac ttacctacaa ggtgttggat gtcagagata cccgttatat acccaaatca      540
c                                                                      541
```

```
<210> 109
<211> 411
<212> DNA
<213> Homo sapien

<400> 109
ctagacctct aattaaaagg cacaatcatg ctggagaatg aacagtctga ccccgagggc     60
cacagcgaat tttagggaag gaggcaaaga ggtgagaagg gaaaggaaag aaggaaggaa    120
ggagaacaat aagaactgga gacgttgggt gggtcaggga gtgtggtgga ggctcggaga    180
gatggtaaac aaacctgact gctatgagtt ttcaacccca tagtctaggg ccatgagggc    240
gtcagttctt ggtggctgag ggtccttcca cccagcccac ctgggggagt ggagtgggga    300
gttctgccag gtaagcagat gttgtctccc aagttcctga cccagatgtc tggcaggata    360
acgctgacct gttccctcaa caagggacct gaaagtaatt ttgctcttta c             411
```

```
<210> 110
<211> 451
<212> DNA
<213> Homo sapien

<400> 110
ccgaattcaa gcgtcaacga tccytccctt accatcaaat caattggcca ccaatggtac     60
tgaacctacg agtacaccga ctacgggcgg actaatcttc aactcctaca tacttccccc    120
attattccta gaaccaggcg acctgcgact ccttgacgtt gacaatcgag tagtactccc    180
gattgaagcc cccattcgta taataattac atcacaagac gtcttgcact catgagctgt    240
ccccacatta ggcttaaaaa cagatgcaat tcccggacgt ctaagccaaa ccactttcac    300
cgctacacga ccggggggtat actacggtca atgctctgaa atctgtggag caaaccacag    360
tttcatgccc atcgtcctag aattaattcc cctaaaaatc tttgaaatag ggcccgtatt    420
taccctatag caccccctct accccctcta g                                    451
```

```
<210> 111
<211> 541
<212> DNA
<213> Homo sapien

<400> 111
gctcttcaca cttttattgt taattctctt cacatggcag atacagagct gtcgtcttga     60
agaccaccac tgaccaggaa atgccacttt tacaaaatca tcccccctt tcatgattgg     120
aacagttttc ctgaccgtct gggagcgttg aagggtgacc agcacatttg cacatgcaaa    180
aaaggagtga ccccaaggcc tcaaccacac ttcccagagc tcaccatggg ctgcaggtga    240
cttgccaggt ttggggttcg tgagctttcc ttgctgctgc ggtgggagg ccctcaagaa     300
ctgagaggcc ggggtatgct tcatgagtgt taacatttac gggacaaaag cgcatcatta    360
ggataaggaa cagccacagc acttcatgct tgtgagggtt agctgtagga gcgggtgaaa    420
ggattccagt ttatgaaaat ttaaagcaaa caacggtttt tagctgggtg ggaaacagga    480
aaactgtgat gtcggccaat gaccaccatt tttctgccca tgtgaaggtc cccatgaaac    540
c                                                                     541
```

```
<210> 112
<211> 521
<212> DNA
<213> Homo sapien

<400> 112
caagcgcttg gcgtttggac ccagttcagt gaggttcttg ggttttgtgc ctttggggat     60
tttggtttga cccagggggtc agccttagga aggtcttcag gaggaggccg agttccccctt    120
cagtaccacc cctctctccc cactttcccct ctcccggcaa catctctggg aatcaacagc    180
```

```
atattgacac gttggagccg agcctgaaca tgcccctcgg cccagcaca tggaaaaccc      240
ccttccttgc ctaaggtgtc tgagtttctg gctcttgagg catttccaga cttgaaattc      300
tcatcagtcc attgctcttg agtctttgca gagaacctca gatcaggtgc acctgggaga      360
aagactttgt ccccacttac agatctatct cctcccttgg gaagggcagg gaatggggac      420
ggtgtatgga ggggaaggga tctcctgcgc ccttcattgc cacacttggt gggaccatga      480
acatctttag tgtctgagct tctcaaatta ctgcaatagg a                          521
```

        <210> 113
        <211> 568
        <212> DNA
        <213> Homo sapien

        <400> 113
```
agcgtcaaat cagaatggaa aagactcaaa accatcatca acaccaagat caaaaggaca       60
agratccttc aagaaacagg aaaaaactcc taaaacacca aaaggaccta gttctgtaga      120
agacattaaa gcaaaaatgc aagcaagtat agaaaaaggt ggttctcttc ccaaagtgga      180
agccaaattc atcaattatg tgaagaattg cttccggatg actgaccaag aggctattca      240
agatctctgg cagtggagga agtctcttta agaaaatagt ttaaacaatt tgttaaaaaa      300
ttttccgtct tatttcattt ctgtaacagt tgatatctgg ctgtcctttt tataatgcag      360
agtgagaact ttccctaccg tgtttgataa atgttgtcca ggttctattg ccaagaatgt      420
gttgtccaaa atgcctgttt agtttttaaa gatggaactc cacccttgc ttggttttaa       480
gtatgtatgg aatgttatga taggacatag tagtagcggt ggtcagacat ggaaatggtg      540
ggsmgacaaa aatatacatg tgaaataa                                        568
```

        <210> 114
        <211> 483
        <212> DNA
        <213> Homo sapien

        <400> 114
```
tccgaattcc aagcgaatta tggacaaacg attccttta gaggattact ttttcaatt        60
tcggtttag taatctaggc tttgcctgta aagaatacaa cgatggattt taaatactgt       120
ttgtggaatg tgtttaaagg attgattcta gaacctttgt atatttgata gtattctaa       180
ctttcatttc tttactgttt gcagttaatg ttcatgttct gctatgcaat cgtttatatg      240
cacgtttctt taattttttt agattttcct ggatgtatag tttaaacaac aaaaagtcta      300
tttaaaactg tagcagtagt ttacagttct agcaaagagg aaagttgtgg ggttaaactt      360
tgtattttct ttcttataga ggcttctaaa aaggtatttt tatatgttct ttttaacaaa      420
tattgtgtac aacctttaaa acatcaatgt ttggatcaaa acaagacca gcttattttc       480
tgc                                                                    483
```

        <210> 115
        <211> 521
        <212> DNA
        <213> Homo sapien

        <400> 115
```
tgtggtggcg cgggctgagg tggaggccca ggactctgac cctgcccctg ccttcagcaa       60
ggccccggc agcgccggcc actacgaact gccgtgggtt gaaaaatata ggccagtaaa       120
gctgaatgaa attgtcggga atgaagacac cgtgagcagg ctagaggtct ttgcaaggga      180
aggaaatgtg cccaacatca tcattgcggg ccctccagga accggcaaga ccacaagcat      240
tctgtgcttg gcccggcccc tgctgggccc agcactcaaa gatgccatgt tggaactcaa      300
tgcttcaaat gacaggggca ttgacgttgt gaggaataaa attaaaatgt ttgctcaaca      360
aaaagtcact cttcccaaag gccgacataa gatcatcatt ctggatgaag cagacagcat      420
gaccgacgga gcccagcaag ccttgaggag aaccatggaa atctactcta aaaccactcg      480
ttcgcccttg cttgtaatgc ttcggataag atcatcgagc c                          521
```

```
        <210> 116
        <211> 501
        <212> DNA
        <213> Homo sapien

        <400> 116
ctttgcaaag cttttatttc atgtctgcgg catggaatcc acctgcacat ggcatcttag        60
ctgtgaagga gaaagcagtg cacgagaagg aatgagtggg cggaaccaac ggcctccaca       120
agctgccttc cagcagcctg ccaaggccat ggcagagaga gactgcaaac aaacacaagc       180
aaacagagtc tcttcacagc tggagtctga aagctcatag tggcatgtgt gaatctgaca       240
aaattaaaag tgtgcatagt ccattacatg cataaaacac taataataat cctgtttaca       300
cgtgactgca gcaggcaggt ccagctccac cactgccctc ctgccacatc acatcaagtg       360
ccatggttta gagggttttt catatgtaat tcttttattc tgtaaaaggt aacaaaatat       420
acagaacaaa acttcccctt tttaaaacta atgttacaaa tctgtattat cacttggata       480
taaatagtat ataagctgat c                                                 501


        <210> 117
        <211> 451
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(451)
        <223> n = A,T,C or G

        <400> 117
caagggatat atgttgaggg tacrgrgtga cactgaacag atcacaaagc acgagaaaca        60
ttagttctct ccctccccag cgtctccttc gtctccctgg ttttccgatg tccacagagt       120
gagattgtcc ctaagtaact gcatgatcag agtgctgkct ttataagact cttcattcag       180
cgtatccaat tcagcaattg cttcatcaaa tgccgttttt gccaggctac aggccttttc       240
aggagagttt agaatctcat agtaaaagac tgacaaattt agtgccagac caagacgaat       300
tgggtgtgta ggctgcattn ctttcttact aatttcaaat gcttcctggt aagcctgctg       360
ggagttcgac acaagtggtt tgtttgttgc tccagatgcc acttcagaaa gatacctaaa       420
ataatctcct ttcattttca aagtagaaca c                                      451


        <210> 118
        <211> 501
        <212> DNA
        <213> Homo sapien

        <400> 118
tccggagccg gggtagtcgc cgccgccgcc gccggtgcag ccactgcagg caccgctgcc        60
gccgcctgag tagtgggctt aggaaggaag aggtcatctc gctcggagct tcgctcggaa       120
gggtctttgt tccctgcagc cctcccacgg gaatgacaat ggataaaagt gagctggtac       180
agaaagccaa actcgctgag caggctgagc gatatgatga tatggctgca gccatgaagg       240
cagtcacaga acagggcat gaactctcca acgaagagag aaatctgctc tctgttgcct       300
acaagaatgt ggtaaggccg cccgccgctc ttcctggcgt gtcatctcca gcattgagca       360
gaaaacagag aggaatgaga agaagcagca gatgggcaaa gagtaccgtg agaagataga       420
ggcagaactg caggacatct gcaatgatgt tctggagctt gttggacaaa tatcttattc       480
caatgctaca caacccagaa a                                                 501


        <210> 119
        <211> 391
```

```
        <212> DNA
        <213> Homo sapien

        <400> 119
aaaaagcagc argttcaaca caaaatagaa atctcaaatg taggatagaa caaaaccaag       60
tgtgtgaggg gggaagcaac agcaaaagga agaaatgaga tgttgcaaaa aagatggagg      120
agggttcccc tctcctctgg ggactgactc aaacactgat gtggcagtat acaccattcc      180
agagtcaggg gtgttcattc ttttttggga gtaagaaaag gtggggatta agaagacgtt      240
tctggaggct tagggaccaa ggctggtctc tttcccccct cccaaccccc ttgatccctt      300
tctctgatca ggggaaagga gctcgaatga gggaggtaga gttggaaagg gaaaggattc      360
cacttgacag aatgggacag actccttccc a                                     391

        <210> 120
        <211> 421
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(421)
        <223> n = A,T,C or G

        <400> 120
tggcaatagc acagccatcc aggagctctt cargcgcatc tcggagcagt tcactgccat       60
gttccgccgg aaggccttcc tccactggta cacaggcgag ggcatggacg agatggagtt      120
caccgaggct gagagcaaca tgaacgacct cgtctctgag tatcaagcag taccaggatg      180
ccaccgcaga agaggaggag gatttcggtg aggaggccga agaggaggcc taaggcagag      240
cccccatcac ctcaggcttc tcagttccct tagccgtctt actcaactgc cccttcctc      300
tccctcagaa tttgtgtttg ctgcctctat cttgtttttt gttttttctt ctggggggt      360
ctagaacagt gcctggcaca tagtaggcgc tcaataaata cttggttgnt gaatgtctcc      420
t                                                                       421

        <210> 121
        <211> 206
        <212> DNA
        <213> Homo sapien

        <400> 121
agctggcgct agggctcggt tgtgaaatac agcgtrgtca gcccttgcgc tcagtgtaga       60
aacccacgcc tgtaaggtcg gtcttcgtcc atctgctttt ttctgaaata cactaagagc      120
agccacaaaa ctgtaacctc aaggaaacca taaagcttgg agtgccttaa tttttaacca      180
gtttccaata aaacggttta ctacct                                           206

        <210> 122
        <211> 131
        <212> DNA
        <213> Homo sapien

        <400> 122
ggagatgaag atgaggaagc tgagtcagct acgggcargc gggcagctga agatgatgag       60
gatgacgatg tcgataccaa gaagcagaag accgacgagg atgactagac agcaaaaaag      120
gaaaagttaa a                                                            131

        <210> 123
        <211> 231
```

```
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(231)
        <223> n = A,T,C or G

        <400> 123
gatgaaaatt aaatacttaa attaatcaaa aggcactacg ataccaccta aaacctactg      60
cctcagtggc agtakgctaa kgaagatcaa gctacagsac atyatctaat atgaatgtta     120
gcaattacat akcargaagc atgtttgctt tccagaagac tatggnacaa tggtcattwg     180
ggcccaagag gatatttggc cnggaaagga tcaagataga tnaangtaaa g             231

        <210> 124
        <211> 521
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(521)
        <223> n = A,T,C or G

        <400> 124
gagtagcaac gcaaagcgct tggtattgag tctgtgggsg acttcggttc cggtctctgc      60
agcagccgtg atcgcttagt ggagtgctta gggtagttgg ccaggatgcc gaatatcaaa     120
atcttcagca ggcagctccc accaggactt atctcasaaa attgctgacc gcctgggcct     180
ggagctaggc aaggtggtga ctaagaaatt cagcaaccag gagacctgtg tggaaattgg     240
tgaaagtgta ccgtggagag gatgtctaca ttgttcagag tggntgtggc gaaatcaatg     300
acaatttaat ggagcttttg atcatgatta atcctgcaa gattgcttca gccagccggg     360
ttactgcagt catcccatgc ttcccttatg ccccggcagg ataagaaaga tnagagccgg     420
gccgccaatc tcagccaagc ttggtgcaaa tatgctatct gtagcagtgc agatcatatt     480
atcaccatgg acctacatgc ttctcaaatt canggctttt t                        521

        <210> 125
        <211> 341
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(341)
        <223> n = A,T,C or G

        <400> 125
atgcaaaagg ggacacaggg ggttcaaaaa taaaaatttc tcttccccct ccccaaacct      60
gtaccccagc tccccgacca caaccccctt cctcccccgg ggaaagcaag aaggagcagg     120
tgtggcatct gcagctggga agagagaggc cggggaggtg ccgagctcgg tgctggtctc     180
tttccaaata taaatacgtg tgtcagaact ggaaaatcct ccagcaccca ccacccaagc     240
actctccgtt ttctgccggt gtttggagag gggcggncgg caggggcgcc aggcaccggc     300
tggctgcggt ctactgcatc cgctgggtgt gcacccgcg a                         341

        <210> 126
        <211> 521
```

```
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(521)
        <223> n = A,T,C or G

        <400> 126
aggttcgaga aggtcatgca ggtgcagatt gtccaggskc agccacaggg tcaagcccaa      60
caggcccaga gtggcactgg acagaccatg caggtgatgc agcagatcat cactaacaca     120
ggagagatcc agcagatccc ggtgcagctg aatgccggcc agctgcagta tatccgctta     180
gcccagcctg tatcaggcac tcaagttgtg caggacaga tccagacact tgccaccaat      240
gctcaacaga ttacacagac agaggtccag caaggacagc agcagttcaa gccagttcac     300
aagatggaca gcagctctac cagatccagc aagtcaccat gcctgcgggc cangacctcg     360
ccagcccatg ttcatccagt caagccaacc agccttcna cgggcaggcc cccaggtga      420
ccggcgactg aagggcctga gctggcaagg ccaangacac ccaacacaat ttttgccata     480
cagcccccag gcaatgggca cagcctttct tcccagagga c                        521

        <210> 127
        <211> 351
        <212> DNA
        <213> Homo sapien

        <400> 127
tgagatttat tgcatttcat gcagcttgaa gtccatgcaa aggrgactag cacagttttt      60
aatgcattta aaaaataaaa gggaggtggg cagcaaacac acaaagtcct agtttcctgg     120
gtccctggga gaaaagagtg tggcaatgaa tccacccact ctccacaggg aataaatctg     180
tctcttaaat gcaaagaatg tttccatggc ctctggatgc aaatacacag agctctgggg     240
tcagagcaag ggatggggag aggaccacga gtgaaaaagc agtacacac attcacctaa      300
ttccatctga gggcaagaac aacgtggcaa gtcttggggg tagcagctgt t              351

        <210> 128
        <211> 521
        <212> DNA
        <213> Homo sapien

        <400> 128
tccagacatg ctcctgtcct aggcggggag caggaaccag acctgctatg ggaagcagaa      60
agagttaagg gaaggtttcc tttcattcct gttccttctc ttttgctttt gaacagtttt     120
taaatatact aatagctaag tcatttgcca gccaggtccc ggtgaacagt agagaacaag     180
gagcttgcta agaattaatt ttgctgtttt tcacccatt caaacagagc tgccctgttc      240
cctgatggag ttccattcct gccagggcac ggctgagtaa cacgaagcca ttcaagaaag     300
gcgggtgtga aatcactgcc accccatgga cagacccctc actcttcctt cttagccgca     360
gcgctactta ataaatatat ttatactttg aaattatgat aaccgatttt tcccatgcgg     420
catcctaagg gcacttgcca gctcttatcc ggacagtcaa gcactgttgt tggacaacag     480
ataaaggaaa agaaaaagaa gaaaacaacc gcaacttctg t                        521

        <210> 129
        <211> 521
        <212> DNA
        <213> Homo sapien

        <400> 129
tgagacggac cactggcctg gtcccccctc atktgctgtc gtaggacctg acatgaaacg      60
```

```
cagatctagt ggcagagagg aagatgatga ggaacttctg agacgtcggc agcttcaaga    120
agagcaatta atgaagctta attcaggcct gggacagttg atcttgaaag aagagatgga    180
gaaagagagc cgggaaaagt catctctgtt agccagtcgc tacgattctc ccatcaactc    240
agcttcacat attccatcat ctaaaactgc atctctccct ggctatggaa gaaatgggct    300
tcaccggcct gtttctaccg acttcgctca gtataacagc catggggatg tcagcggggg    360
agtgcgagat taccagacac ttccagatgg ccacatgcct gcaatgagaa tggaccgagg    420
agtgtctatg cccaacatgt tggaaccaaa gatatttcca tatgaaatgc tcatggtgac    480
caacagaggg ccgaaaccaa atctcagaga ggtggacaga a                        521
```

```
        <210> 130
        <211> 270
        <212> DNA
        <213> Homo sapien
```

```
        <400> 130
tcactttatt tttcttgtat aaaaacccta tgttgtagcc acagctggag cctgagtccg     60
ctgcacggag actctggtgt gggtcttgac gaggtggtca gtgaactcct gataggggaga    120
cttggtgaat acagtctcct tccagaggtc gggggtcagg tagctgtagg tcttagaaat    180
ggcatcaaag gtggccttgg cgaagttgcc caggtggca gtgcagcccc gggctgaggt     240
gtagcagtca tcgataccag ccatcatgag                                     270
```

```
        <210> 131
        <211> 341
        <212> DNA
        <213> Homo sapien
```

```
        <400> 131
ctggaatata gacccgtgat cgacaaaact ttgaacgagg ctgactgtgc caccgtcccg     60
ccagccattc gctcctactg atgagacaag atgtggtgat gacagaatca gcttttgtaa    120
ttatgtataa tagctcatgc atgtgtccat gtcataactg tcttcatacg cttctgcact    180
ctgggaaga aggagtacat tgaagggaga ttggcaccta gtggctggga gcttgccagg    240
aacccagtgg ccagggagcg tggcacttac ctttgtccct tgcttcattc ttgtgagatg    300
ataaaactgg gcacagctct taaataaaat ataaatgaac a                        341
```

```
        <210> 132
        <211> 844
        <212> DNA
        <213> Homo sapien
```

```
        <220>
        <221> misc_feature
        <222> (1)...(844)
        <223> n - A,T,C or G
```

```
        <400> 132
tgaatgggga ggagctgacc caggaaatgg agcttgngga gaccaggcct gcaggggatg     60
gaaccttcca gaagtgggca tctgtggtgg tgcctcttgg gaaggagcag aagtacacat    120
gccatgtgga acatgagggg ctgcctgagc ccctcaccct gagatggggc aaggaggagc    180
ctccttcatc caccaagact aacacagtaa tcattgctgt tccggttgtc cttggagctg    240
tggtcatcct tggagctgtg atggcttttg tgatgaagag gaggagaaac acaggtggaa    300
aaggagggga ctatgctctg gctccaggct cccagagctc tgatatgtct ctcccagatt    360
gtaaagtgtg aagcacagctg cctggtgtgg acttggtgac agacaatgtc ttcacacatc    420
tcctgtgaca tccagagacc tcagttctct ttagtcaagt gtctgatgtt ccctgtgagt    480
ctgcgggctc aaagtgaaga actgtggagc ccagtccacc cctgcacacc aggaccctat    540
ccctgcactg ccctgtgttc ccttccacag ccaaccttgc tgctccagcc aaacattggt    600
```

```
ggacatctgc agcctgtcag ctccatgcta ccctgacctt caactcctca cttccacact      660
gagaataata atttgaatgt gggtggctgg agagatggct cagcgctgac tgctcttcca      720
aaggtcctga gttcaaatcc cagcaaccac atggtggctc acaaccatct gtaatgggat      780
ctaataccct cttctgcagt gtctgaagac asctacagtg tacttacata taataataaa      840
taag                                                                    844
```

```
        <210> 133
        <211> 601
        <212> DNA
        <213> Homo sapien

        <400> 133
ggccgggcgc gcgcgccccc gccacacgca cgccgggcgt gccagtttat aaaggcagag       60
agcaagcagc gagtcttgaa gctctgtttg gtgctttgga tccattccca tcggtcctta      120
cagccgctcg tcagactcca gcagccaaga tggtgaagca gatcgagagc aagactgctt      180
ttcaggaagc cttggacgct gcaggtgata aacttgtagt agttgacttc tcagccacgt      240
ggtgtgggcc ttgcaaaatg atcaagcctt tctttcattc cctctctgaa aagtattcca      300
acgtgatatt ccttgaagta gatgtggatg actgtcagga tgttgcttca gagtgtgaag      360
tcaaatgcat gccaacattc cagttttta agaagggaca aaaggtgggt gaattttctg      420
gagccaataa ggaaaagctt gaagccacca ttaatgaatt agtctaatca tgttttctga      480
aaatataacc agccattggc tatttaaaac ttgtaatttt tttaatttac aaaaatataa      540
aatatgaaga cataaacccm gttgccatct gcgtgacaat aaaacattaa tgctaacact      600
t                                                                       601
```

```
        <210> 134
        <211> 421
        <212> DNA
        <213> Homo sapien

        <400> 134
tcacataaga aatttaagca agttacrcta tcttaaaaaa cacaacgaat gcattttaat       60
agagaaaccc ttccctccct ccacctccct ccccaccct cctcatgaat taagaatcta      120
agagaagaag taaccataaa accaagtttt ctggaatcca tcatccagag tgcttacatg      180
gtgattaggt taatattgcc ttcttacaaa atttctattt taaaaaaaat tataaccttg      240
attgcttatt acaaaaaaat tcagtacaaa agttcaatat attgaaaaat gcttttcccc      300
tccctcacag caccgttta tatatagcag agaataatga agagattgct agtctagatg      360
gggcaatctt caaattacac caagacgcac agtggttat ttaccctccc cttctcataa      420
g                                                                       421
```

```
        <210> 135
        <211> 511
        <212> DNA
        <213> Homo sapien

        <400> 135
ggaaaggatt caagaattag aggacttgct tgctrragaa aaagacaact ctcgtcgcat       60
gctgacagac aaagagagag agatggcgga ataaagggat caaatgcagc aacagctgaa      120
tgactatgaa cagcttcttg atgtaaagtt agccctggac atggaaatca gtgcttacag      180
gaaactctta gaaggcgaag aagagaggtt gaagctgtct ccaagccctt cttcccgtgt      240
gacagtatcc cgagcatcct caagtcgtag tgtaccgtac aactagagga aagcgaaga      300
gggttgatgt ggaagaatca gaggcgaagt agtagtgtta gcatctctca ttccgcctca      360
accactggaa atgtttgcat cgaagaaatt gatgttgatg ggaaatttat cccgcttgaa      420
gaacacttct gaacaggatc aaccaatggg aaggcttggg agatgatcag aaaaattgga      480
gacacatcag tcagttataa atatacctca a                                     511
```

```
<210> 136
<211> 341
<212> DNA
<213> Homo sapien

<400> 136
catgggtttc accaggtcgg ccaggctgct cttgaactcc tgacctcagg tgatccaccc     60
gcctcggcct cccaaagtcc tgggattaca ggcgtgagcc accacgcccg gcccccaaag    120
ctgtttcttt tgtctttagc gtaaagctct cctgccatgc agtatctaca taactgacgt    180
gactaccagc aagctcagtc actccgtggt cttttttctct ttccagttct tctctctctc    240
ttcaagttct gcctcagtga aagctgcagg tccccagtta agtgatcagg tgagggttct    300
ttgaacctgg ttctatcagt cgaattaatc cttcatgatg g                        341

<210> 137
<211> 551
<212> DNA
<213> Homo sapien

<400> 137
gatgtgttgg accctctgtg tcaaaaaaaa cctcacaaag aatcccctgc ttattacaga     60
agaagatgca tttaaaatat gggttatttt caacttttta tctgaggaca agtatccatt    120
aattattgtg tcagaagaga ttgaatacct gcttaagaag cttacagaag ctatgggagg    180
aggttggcag caagaacaat ttgaacatta taaaatcaac tttgatgaca gtaaaaatgg    240
cctttctgca tgggaactta ttgagcttat tggaaatgga cagtttagca aaggcatgga    300
ccggcagact gtgtctatgg caattaatga agtctttaat gaacttatat tagatgtgtt    360
aaaagcagggt tacatgatga aaaagggcca cagacggaaa aactggactg aaagatggtt    420
tgtactaaaa cccaacataa tttcttacta tgtgagtgag gatctgaagg ataagaaagg    480
agacattctc ttggatgaaa attgctgtgt agaagtcctt gcctgacaaa agatggaaag    540
aaatgccttt t                                                         551

<210> 138
<211> 531
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(531)
<223> n = A,T,C or G

<400> 138
gactggttct ttatttcaaa aagacacttg tcaatattca gtrtcaaaac agttgcacta     60
ttgatttctc tttctcccaa tcggcccaa agagaccaca taaaaggaga gtacatttta    120
agccaataag ctgcaggatg tacacctaac agacctccta gaaaccttac cagaaaatgg    180
ggactgggta gggaaggaaa cttaaaagat caacaaactg ccagcccacg gactgcagag    240
gctgtcacag ccagatgggg tggccagggt gccacaaacc caaagcaaag tttcaaaata    300
atataaaatt taaaaagttt tgtacataag ctattcaaga tttctccagc actgactgat    360
acaaagcaca attgagatgg cacttctaga gacagcagct tcaaacccag aaaagggtga    420
tgagatgaac ttcacatgg ctaaatcagt ggcaaaaaca cagtcttctt tctttctttc    480
tttcaaggan gcaggaaagc aattaagtgg tcaccttaac ataagggga c              531

<210> 139
<211> 521
<212> DNA
<213> Homo sapien
```

```
<220>
<221> misc_feature
<222> (1)...(521)
<223> n = A,T,C or G

<400> 139
tgggtgggca ccatggctgg gatcaccacc atcgaggcgg tgaagcgcaa gatccaggtt     60
ctgcagcagc aggcagatga tgcagaggag cgagctgagc gcctccagcg agaagttgag    120
ggagaaaggc gggcccggga acaggctgag gctgaggtgg cctccttgaa ccgtaggatc    180
cagctggttg aacaagagct ggaccgtgct caggagcgcc tggccactgc cctgcaaaag    240
ctggaagaag ctgaaaaagc tgctgatgag agtgagagag gtatgaaggt tattgaaaac    300
cgggccttaa aacatgaaga aaagatggaa ctccaggaaa tccaactcaa agaagctaag    360
cacattgcag aacaggcaga taggaagtat gaagaggtgg ctcgtaagtt ggtgatcatt    420
gaaggagact tggaaccgca cagaaggaac gagcttgagc ttggcaaaag tcccgttgcc    480
cagagatggg atcaaccaga ttagactgat ggaccanaac c                       521
```

```
<210> 140
<211> 571
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(571)
<223> n = A,T,C or G

<400> 140
aggggcngcg ggtgcgtggg ccactgggtg accgacttag cctggccaga ctctcagcac     60
ctggaagcgc cccgagagtg acagcgtgag gctgggaggg aggacttggc ttgagcttgt    120
taaactctgc tctgagcctc cttgtcgcct gcatttagat ggctcccgca aagaagggtg    180
gcgagaagaa aaagggccgt tctgccatca acgaagtgct aacccgagaa tacaccatca    240
acattcacaa gcgcatccat ggagtggggc tcaagaagcg tgcacctcgg gcactcaaag    300
agattcggaa atttgccatg aaggagatgg gaactccaga tgtgcgcatt gacaccaggc    360
tcaacaaagc tgtctgggcc aaaaggaataa ggaatgtgcc ataccgaatc cggtgtgcgg    420
ctgtccagaa aacgtaatga ggatgaagat tcaccaaata agctatatac tttggttacc    480
tatgtacctg ttaccacttt caaaaatcta cagacagtca atgtggatgn gaactaatcg    540
ctgatcgtca gatcaaataa agttataaaa t                                  571
```

```
<210> 141
<211> 531
<212> DNA
<213> Homo sapien

<400> 141
tcgggagcca cacttggccc tcttcctctc caaagsqcca gaacctcctt ctctttggag     60
aatggggagg cctcttggag acacagaggg tttcaccttg gatgacctct agagaaattg    120
cccaagaagc ccaccttctg gtcccaacct gcagacccca cagcagtcag ttggtcaggc    180
cctgctgtag aaggtcactt ggctccattg cctgcttcca accaatgggc aggagagaag    240
gcctttattt ctcgcccacc cattcctcct gtaccagcac ctccgttttc agtcagtgtt    300
gtccagcaac ggtaccgttt acacagtcac ctcagacaca ccatttcacc tcccttgcca    360
agctgttagc cttagagtga ttgcagtgaa cactgtttac acaccgtgaa tccattccca    420
tcagtccatt ccagttggca ccagcctgaa ccatttggta cctggtgtta actggagtcc    480
tgtttacaag gtggagtcgg ggcttgctga cttctcttca tttgagggca c            531
```

```
<210> 142
<211> 491
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(491)
<223> n = A,T,C or G

<400> 142
acctagacag aaggtgggtg agggaggact ggtaggaggc tgaggcaatt ccttggtagt      60
ttgtcctgaa accctactgg agaagtcagc atgaggcacc tactgagaga agtgcccaga     120
aactgctgac tgcatctgtt angagttaac agtaaagagg tagaagtgtg tttctgaatc     180
agagtggaag cgtctcaagg gtcccacagt ggaggtccct gagctacctc ccttccgtga     240
gtgggaagag tgaagcccat gaagaactga gatgaagcaa ggatgggctt cctgggctcc     300
aggcaagggc tgtgctctct gcagcaggga gccccacgag tcagaagaaa agaactaatc     360
atttgttgca agaaaccttg cccggatact agcggaaaac tggaggcggn ggtgggggca     420
caggaaagtg gaagtgattt gatggagagc agagaagcct atccacagtg gccgagtcca     480
cttgtaaagt g                                                          491


<210> 143
<211> 515
<212> DNA
<213> Homo sapien

<400> 143
ttcaagcaat tgtaacaagt atatgtagat tagagtgagc aaaatcatat acaattttca      60
tttccagttg ctattttcca aattgttctg taatgtcgtt aaaattactt aaaaattaac     120
aaagccaaaa attatattta tgacaagaaa gccatcccta cattaatctt actttttccac    180
tcaccggccc atctccttcc tcttttttcct aactatgcca ttaaaactgt tctactgggc     240
cgggcgtgtg gctcatgcct gtaatcccag cattttggga ggccaaggca ggcggatcat     300
gaggtcaaga gattgagacc atcctggcca acatggtgaa accccgcctc gactaagaat     360
acaaaaatta gctgggcatg gtggcgcatg cctgtagtct cagctactcg ggaggctgag     420
gcagaagaat cgcttgaacc cgggaggcag aggatgcagt gagcccgat cacaccactg     480
cactctagcc tgggacag actgagactc tgctc                                  515


<210> 144
<211> 340
<212> DNA
<213> Homo sapien

<400> 144
tgtgccagtc tacaggccta tcagcagcga ctccttcagc aacagatggg gtcccctgtt      60
cagcccaacc ccatgagccc ccagcagcat atgctcccaa atcaggccca gtccccacac     120
ctacaaggcc agcagatccc taattctctc tccaatcaag tgcgctctcc ccagcctgtc     180
ccttctccac ggccacagtc ccagccccc cactccagtc cttccccaag gatgcagcct     240
cagccttctc cacaccacgt ttccccacag acaagttccc cacatcctgg actggtagtt     300
gcccaggcca acccatgga acaaggggcat tttgccagcc                          340


<210> 145
<211> 630
<212> DNA
<213> Homo sapien
```

```
      <400> 145
tgtaaaaact tgtttttaat tttgtataaa ataaaggtgg tccatgccca cggggggctgt        60
aggaaatcca agcagaccag ctggggtggg gggatgtagc ctacctcggg ggactgtctg       120
tcctcaaaac gggctgagaa ggcccgtcag gggcccaggt cccacagaga ggcctgggat       180
actccccaa cccgaggggc agactgggca gtggcgagcc cccatcgtgc cccagaggtg       240
gccacaggct gaaggagggg cctgaggcac cgcagcctgc aacccccagg gctgcagtcc       300
actaactttt tacagaataa aaggaacatg gggatgggga aaaaagcacc aggtcaggca       360
gggcccgagg gccccagatc ccaggagggc caggactcag gatgccagca ccaccctagc       420
agctcccaca gctcctggca caggaggccg ccacggattg gcacaggccg ctgctggcca       480
tcacgccaca tttggagaac ttgtcccgac agaggtcagc tcggaggagc tcctcgtggg       540
cacacactgt acgaacacag atctccttgt taatgacgta cacacggcgg aggctgcggg       600
gacagggcac gggaggtctc agccccactt                                        630


      <210> 146
      <211> 521
      <212> DNA
      <213> Homo sapien

      <400> 146
atggctgctg gatttaggtg gtaatagggg ctgtgggcca taaatctgaa gccttgagaa        60
ccttgggtct ggagagccat gaagagggaa ggaaaagagg gcaagtcctg aacctaacca       120
atgacctgat ggattgctcg accaagacac agaagtgaag tctgtgtctg tgcacttccc       180
acagactgga gtttttggtg ctgaatagag ccagttgcta aaaaattggg ggtttggtga       240
agaaatctga ttgttgtgtg tattcaatgt gtgatttaa aaataaacag caacaacaat       300
aaaaaacctg actggctgtt ttttccctgt attctttaca actattttt gaccctctga       360
aaattattat acttcaccta aatggaagac tgctgtgttt gtggaaattt tgtaatttt       420
taatttattt tattctctct cctttttatt ttgcctgcag aatccgttga gagactaata       480
aggcttaata tttaattgat ttgtttaata tgtatataaa t                          521


      <210> 147
      <211> 562
      <212> DNA
      <213> Homo sapien

      <400> 147
ggcatgcgag cgcactcggc ggacgcaagg gcggcgcgga gcacacggag cactgcaggc        60
gccgggttcg gacagcgtct tcgctgctgc tggatagtcg tgttttcggg gatcgaggat       120
actcaccaga aaccgaaaat gccgaaacca atcaatgtcc gagttaccac catggatgca       180
gagctggagt ttgcaatcca gccaaataca actggaaaac agcttttga tcaggtggta       240
aagactatcg gcctccggga agtgtggtac tttggcctcc actatgtgga taataaagga       300
tttcctacct cggctgaagct ggataagaag gtgtctgccc aggaggtcag gaaggagaat       360
cccctccagt tcaagttccg ggccaaagtt ctaccctgaa gatgtggctg aggagctcat       420
ccaggacatc acccagaaac tttttcttcct tcaagtgaag gaaggaatcc ttagcgatga       480
gatctactgc ccccccttgar actgccgtgc tcttggggtc ctacgcttgt gcatgccaag       540
tttggggact accaccaaga ag                                                562


      <210> 148
      <211> 820
      <212> DNA
      <213> Homo sapien

      <400> 148
gaaggagtcg ggatactcag cattgatgca ccccaatttc aaagcggcat tcttcggcag        60
gtctctggga caatctctag ggtcactacc tggaaactcg ttagggtaca actgaatgct       120
gaaaggaaag aacacctgca gaaccggaca gaaattcacc ccggcgatca gctgattgat       180
```

```
ctcggtcgac cagaagtcat ggctaaagat gacgaggacg ttgtcaattc cctgggcttt      240
tcgaagtgcg tccagcagca gtctgaggta ttcgggccgg ttatgcacct ggaccaccag      300
caccagctcc cggggggccc aggtgccagc cttatctaca ttcctcaggg tctgatcaaa      360
gttcagctgg tacaccaggg accggtaccg cagcgtcagg ttgtccgctc gggctggggg      420
accgccggga ccagggaagc cgccgacacg ttggagaccc tgcggatgcc cacagccaca      480
gagggtggt ccccaccgcg gccgccggca ccccgcgcgg gttcggcgtc cagcaacggt      540
gggcgaggg cctcgttctt cctttgtcgc ccattgctgc tccagaggac gaagccgcag      600
gcggccacca cgagcgtcag gattagcacc ttccgtttgt agatgcggaa cctcatggtc      660
tccagggccg ggagcgcagc tacagctcga gcgtcggcgc cgccgctagg agccgcggct      720
cggcttcgtc tccgtcctct ccattcagca ccacgggtcc cggaaaaagc tcagccscgg      780
tcccaaccgc acccctagctt cgttacctgc gcctcgcttg                          820
```

```
        <210> 149
        <211> 501
        <212> DNA
        <213> Homo sapien


        <400> 149
cagatttta tttgcagtcg tcactggggc cgttccttgc tgcttatttg tctgctagcc       60
tgctcttcca gctgcatggc caggcccaag gcctgatga catctcgcag ggctgagaaa      120
tgcttggctt gctgggccng agcagattcc gctttgttca caaagtctc caggtcatag      180
tctggctgct cggtcatctc agagagctca agccagtctg gtccttgctc tatgatctc      240
ttgagctctt ccatagcctt ctcctccagc tccctgatct gagtcatggc ttcgttaaag      300
ctggacatct gggaagacag ttcctcctct tccttggata aattgcctga aatcagcgcc      360
ccgttagagc aggcttccat ctcttctgtt tccatttgaa tcaactgctc tccactgggc      420
ccactgtggg ggctcagctc cttgaccctg ctgcatatct taagggtgtt taaaggatat      480
tcacaggagc ttatgcctgg t                                              501
```

```
        <210> 150
        <211> 511
        <212> DNA
        <213> Homo sapien


        <220>
        <221> misc_feature
        <222> (1)...(511)
        <223> n = A,T,C or G


        <400> 150
ctcctcttgg tacatgaacc caagttgaaa gtggacttaa caaagtatct ggagaaccau       60
gcattctgct ttgactttgc atttgatgaa acagctttga atgaagttgt ctacaggttc      120
acagcaaggc cactggtaca gacaatcttt gaaggtggaa aagcaacttg ttttgcatat      180
ggccagacag gaagtggcaa gacacatact atgggcggag acctctctgg gaaagcccag      240
aatgcatcca aaggatcta tgccatggcc ttccgggacg tcttcttctg aagaatcaac      300
cctgctaccg gaagttgggc ctggaagtct atgtgacatt cttcgagatc tacaatgggo      360
agctgtttga cctgctcaac aagaaggcca agcttgcgcg tgctggaaga cggcaagcaa      420
caggtgcaag tggtggggggc ttgcaggaac atctggntaa ctctgcttga tgatggcant      480
caagatgatc gacatgggca gcgcctgcag a                                    511
```

```
        <210> 151
        <211> 566
        <212> DNA
        <213> Homo sapien


        <400> 151
```

```
tcccgaattc aagcgacaaa ttggawagtg aaatggaaga tgcctatcat gaacatcagg          60
caaatctttt gcgccaagat ctgatgagac gacaggaaga attaagacgc atggaagaac         120
ttcacaatca agaaatgcag aaacgtaaag aaatgcaatt gaggcaagag gaggaacgac         180
gtagaagaca ggaagagatg atgattcgtc aacgtgagat ggaagaacaa atgaggcgcc         240
aaagagagga aagttacagc cgaatgggct acatggatcc acggaaaaga gacatgcgaa         300
tgggtggcgg aggagcaatg aacatgggag atccctatgg ttcaggaggc cagaaatttc         360
cacctctagg aggtggtggt ggcataggtt atgaagctaa tcctggcgtt ccaccagcaa         420
ccatgagtgg ttccatgatg gyaactgaca tgcgtactga gcgctttggg cagggaggtg         480
cggggcctgt gggtggacag ggtcctagag gaatggggcc tggaactcca gcaggatatg         540
gtagagggag agaagagtac gaaggc                                              566
```

```
        <210> 152
        <211> 518
        <212> DNA
        <213> Homo sapien


        <400> 152
ttcgtgaaga ccctgactgg taagaccatc actctcgaag tggagcccga gtgacaccat          60
tgagaatgtc aaggcaaaga tccaagacaa ggaaggcatc cctcctgacc agcakaggtt         120
gatctttgct gggaaacagc tggaagatgg acgcaccctg tctgactaca acatccagaa         180
agagtccacc ctgcacctgg tgctccgtct cagaggtggg atgcaaatct tcgtcaagac         240
cctgactggt aagaccatca ccctcgaggt ggagcccagt gacaccatcg agaatgtcaa         300
ggcaaagatc caagataagg aaggcatccc tcctgatcag cagaggttga tctttgctgg         360
gaaacagctg aagatggac gcaccctgtc tgactacaac atccagaaag agtccactct         420
gcacttggtc ctgcgcttga gggggggtgt ctaagtttcc cctttaagg tttcaacaaa         480
tttcattgca cttccttct aataaagttg ttgcattc                                 518
```

```
        <210> 153
        <211> 542
        <212> DNA
        <213> Homo sapien


        <400> 153
gcgcgggtgc gtgggccact gggtgaccga cttagcctgg ccagactctc agcacctgga          60
agcgccccga gagtgacagc gtgaggctgg gagggaggac ttggcttgag cttgttaaac         120
tctgctctga gcctccttgt cgcctgcatt tagatgcctc ccgcaaagaa gggtggcgag         180
aagaaaaagg gccgttctgc catcaacgaa gtggtaaccc gagaatacac catcaacatt         240
cacaagcgca tccatggagt gggcttcaag aagcgtgcac ctcggcact caaagagatt         300
cggaaatttg ccatgaagga gatgggaact ccagatgtgc gcattgacac caggctcaac         360
aaagctgtct gggccaaagg aataaggaat gtgccatacc gaatccgtgt gcggctgtcc         420
agaaaacgta atgaggatga agattcacca aataagctat atactttggt tacctatgta         480
cctgttacca cttttcaaaaa tctacagaca gtcaatgtgg atgagaacta atcgctgatc         540
gt                                                                        542
```

```
        <210> 154
        <211> 411
        <212> DNA
        <213> Homo sapien


        <400> 154
aattctttat ttaaatcaac aaactcatct tcctcaagcc ccagaccatg gtaggcagcc          60
ctccctctcc atcccctcac cccaccccctt agccacagtg aagggaatgg aaaatgagaa         120
gccacgaggg cccctgccag ggaaggctgc cccagatgtg tggtgagcac agtcagtgca         180
gctgtggctg gggcagcagc tgccacaggc tcctccctat aaattaagtt cctgcagcca         240
cagctgtggg agaagcatac ttgtagaagc aaggccagtc cagcatcaga aggcagaggc         300
```

```
agcatcagtg actcccagcc atggaatgaa cggaggacac agagctcaga gacagaacag       360
gccaggggga agaaggagag acagaatagg ccagggcatg gcggtgaggg a               411
```

```
        <210> 155
        <211> 421
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(421)
        <223> n = A,T,C or G

        <400> 155
tgatgaatct gggtgggctg gcagtagccc gagatgatgg gctcttctct gggatccca        60
actggttccc taagaaatcc aaggagaatc ctcggaactt ctcggataac cagctgcaag       120
agggcaagaa cgtgatcggg ttacagatgg gcaccaaccg cggggcgtct canqcaggca       180
tgactggcta cgggatgcca cgccagatcc tctgatccca ccccaggcct tgcccctgcc       240
ctcccacgaa tggttaatat atatgtagat atatatttta gcagtgacat tccagagag        300
cccagagct ctcaagctcc tttctgtcag ggtggggggt tcaagcctgt cctgtcacct        360
ctgaagtgcc tgctggcatc ctctccccca tgcttactaa tacattccct tccccatagc       420
c                                                                       421
```

```
        <210> 156
        <211> 670
        <212> DNA
        <213> Homo sapien

        <400> 156
agcggagctc cctcccctgg tggctacaac ccacacacgc caggctcagg catcgagcag       60
aactccagcg actgggtaac cactgacatt caggtgaagg tgcgggacac ctacctggat       120
acacaggtgg tgggacagac aggtgtcatc cgcagtgtca cggggggcat gtgctctgtg       180
tacctgaagg acagtgagaa ggttgtcagc atttccagtg agcacctgga gcctatcacc       240
cccaccaaga acaacaaggt gaaagtgatc ctgggcgagg atcgggaagc cacgggcgtc       300
ctactgagca ttgatggtga gcatggcatt gtccgtatgg accttgatga gcagctcaag       360
atcctcaacc tccgcttcct ggggaagctc ctggaagcct gaagcaggca gggccgctgg       420
acttcgtcgg atgaagagtg atcctccttc cttccctggc ccttggctgt gacacaagat       480
cctcctgcag ggctaggcgg attgttctgg attttccttt gtttttcctt ttaggtttcc       540
atcttttccc tccctggtgc tcattggaat ctgagtagag tctgggggag ggtccccacc       600
ttcctgtacc tcctccccac agcttgcttt tgttgtaccg tctttcaata aaagaagct        660
gtttggtcta                                                              670
```

```
        <210> 157
        <211> 421
        <212> DNA
        <213> Homo sapien

        <400> 157
ggttcacagc actgctgctt gtgtgttgcc ggccaggaat tccaggctca caaggctatc       60
ttagcagctc gttctccggt ttttagtgcc atgtttgaac atgaaatgga ggagagcaaa       120
aagaatcgag ttgaaatcaa tgatgtggag cctgaagttt ttaaggaaat gatgtgcttc       180
atttacacgg ggaaggctcc aaacctcgac aaaatggctg atgatttgct ggcagctgct       240
gacaagtatg ccctggagcg cttaaaggtc atgtgtgagg atgccctctg cagtaacctg       300
tccgtggaga acgctgcaga aattctcatc ctggccgacc tccacagtgc agatcagttg       360
aaaactcagg cagtggattt catcaactat catgcttcgg atgtcttgga gacctcttgg       420
```

9   421

```
        <210> 158
        <211> 321
        <212> DNA
        <213> Homo sapien


        <400> 158
tcgtagccat ttttctgctt ctttggagaa tgacgccaca ctgactgctc attgtcgttg      60
gttccatgcc aattggtgaa atagaacctc atccggtagt ggagccggag ggacatattg     120
tcatcaaccg tgatggtgcg atttggagca taccagagct tggtgttctc gccatacagg     180
gcaaagaggt tgtgacaaag aggagagata cggcatgcct gtgcagccct gatgcacagt     240
tcctctgctg tgtactctcc actgcccagc cggaggggct ccctgtccga cagatagaag     300
atcacttcca cccctggctt g                                               321


        <210> 159
        <211> 596
        <212> DNA
        <213> Homo sapien


        <400> 159
tggcacactg ctcttaagaa actatgawga tctgagattt tttgtgtat gttttttgact      60
cttttgagtg gtaatcatat gtgtctttat agangtacat acctccttgc acaaatggag     120
gggaattcat tttcatcact gggactgtcc ttagtgtata aaaaccatgc tggtatatgg     180
cttcaagttg taaaaatgaa agtgacttta aaagaaaata ggggatggtc caggatctcc     240
actgataaga ctgtttttaa gtaacttaag gacctttggg tctacaagta tatgtgaaaa     300
aaatgagact tactgggtga ggaaattcat tgtttaaaga tggtcgtgtg tgtgtgtgtg     360
tgtgtgtgtg ttgtgttgtg ttttgttttt taaggagggg aatttattat ttaccgttgc     420
ttgaaattac tgkgtaaata tatgtytgat aatgatttgc tytttgvcma ctaaaattag     480
gvctgtataa gtwctaratg cmtccctggg kgttgatytt ccmagatatt gatgatamcc     540
cttaaaattg taaccygcct ttttcccttt gctytcmatt aaagtctatt cmaaag        596


        <210> 160
        <211> 515
        <212> DNA
        <213> Homo sapien


        <400> 160
gggggtaggc tcttattag acggttattg ctgtactaca gggtcagagt gcagtgtaag      60
cagtgtcaga ggccgcgtt cagcccaaga atgtggattt tctctcccta ttgatcacag     120
tgggtgggtt tcttcagaaa agccccagag gcagggacca gtgagctcca aggttagaag     180
tggaactgga aggcttcagt cacatgctgc ttcaacgctt ccaggctggg cagcaaggag     240
gagatgccca tgacgtgcca ggtctcccca tctgacacca gtgaagtctg gtaggacagc     300
agccgcacgc ctgcctctgc caggaggcca atcatggtag gcagcattgc agggtcagag     360
gtctgagtcc ggaataggag caggggcagg tccctgcgga gaggcacttc tggcctgaag     420
acagctccat tgagcccctg cagtacaggy gtagtgcctt ggaccaagcc cacagcctgg     480
taagggcgc ctgccagggc cacggccagg aggca                                515


        <210> 161
        <211> 936
        <212> DNA
        <213> Homo sapien


        <400> 161
taatttctta gtcgttggga atccttaagc atgcaaaagc tttgaacaga agggttcaca      60
```

52

```
aaggaaccag ggttgtctta tggcatccag ttaagccaga gctgggaatg cctctgggtc      120
atccacatca ggagcagaag cacttgactt gtcggtcctg ctgccacggt ttgggcgccc      180
accacgccca cgtccacctc gtcctcccct gccgccacgt cctgggcggc caaggtctcc      240
aaaattgatc tccagctgag acgttatatc atttgctggc ttccggaaat gatggtccat      300
aaccgaatct tcagcatgag cctcttcact ctttgattta tgaagaacaa atcccttctt      360
ccactgccca tcagcacctt catttggttt tcggatatta aattctactt ttgcccggtc      420
cttattttga atagccttcc actcatccaa agtcatctct tttggaccct cctctttac       480
ctcttcaact tcattctcct tattttcagt gtctgccact ggatgatgtt cttcaccttc      540
aggtgtttcc tcagtcacat ttgattgatc caagtcagtt aattcgtctt tgacagttcc      600
ccagttgtga gatccgctac ctccacgttt gtcctcgtgc ttcaggccag atctatcact      660
tccactatgc ctatcaaatt cacgtttgcc acgagaatca aatccatctc ctcggcccat      720
tccacgtcca cggcccccctc gacctcttcc aagaccacca cgacctcgaa taggtcggtc      780
aataatcggt ctatcaactg aaaattcgcc tccttcaccc tttcttcaa gtggcttttc       840
gaatcttcgt tcacgaggtg gtcgcctttc tggtcttcta tcaattattt tcccttcacc      900
ctgaagttgt tgatcaggtc ttcttccaac tcgtgc                                936
```

```
        <210> 162
        <211> 950
        <212> DNA
        <213> Homo sapien

        <400> 162
aagcggatgg acctgagtca gccgaatcct agcccttcc cttgggcctg ctgtggtgct        60
cgacatcagt gacagacgga agcagcagac catcaaggct acgggaggcc cggggcgctt      120
gcgaagatga agtttggctg cctctccttc cggcagcctt atgctggctt tgtcttaaat      180
ggaatcaaga ctgtggagac gcgctggcgt cctctgctga gcagccagcg gaactgtacc      240
atcgccgtcc acattgctca cagggactgg gaaggcgatg cctgtcggga gctgctggtg      300
gagagactcg ggatgactcc tgctcagatt caggccttgc tcaggaaagg ggaaaagttt      360
ggtcgaggag tgatagcggg actcgttgac attggggaaa ctttgcaatg ccccgaagac      420
ttaactcccg atgaggttgt ggaactagaa aatcaagctg cactgaccaa cctgaagcag      480
aagtacctga ctgtgatttc aaaccccagg tggttactgg agcccatacc taggaaagga      540
ggcaaggatg tattccaggt agacatccca gagcacctga tccctttggg gcatgaagtg      600
tgacaagtgt gggctcctga aaggaatgtt cctgagaaac cagctaaatc atggcacctt      660
caatttgcca tcgtgacgca gacctgtata aattaggtta aagatgaatt tccactgctt      720
tggagagtcc cacccactaa gcactgtgca tgtaaacagg ttcctttgct cagatgaagg      780
aagtaggggg tggggctttc cttgtgtgat gcctccttag gcacacaggc aatgtctcaa      840
gtactttgac cttagggtag aaggcaaagc tgccagtaaa tgtctcagca ttgctgctaa      900
tttttggtcct gctagtttct ggattgtaca aataaatgtg ttgtagatga                950
```

```
        <210> 163
        <211> 475
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(475)
        <223> n = A,T,C or G

        <400> 163
tcgagcggcc gcccgggcag gtgtcggagt ccagcacggg aggcgtggtc ttgtagttgt        60
tctccggctg cccattgctc tcccactcca cggcgatgtc gctgggatag aagcctttga      120
ccaggcaggt caggctgacc tggttcttgg tcatctcctc cgggatggg ggcagggtgt       180
acacctgtgg ttctcggggc tgccctttgg ctttggagat ggttttctcg atggggggctg      240
ggagggcttt gttggagacc ttgcacttgt actccttgcc attcaaccag tcctggtgca      300
```

```
ngacggtgag gacgctnacc acacggtacg ngctggtgta ctgctcctcc cgcggctttg      360
tcttggcatt atgcacctcc angccgtcca cgtaccaatt gaacttgacc tcagggtctt      420
cgtggctcac gtccaccacc acgcatgtaa cctcaaanct cggncgcgan cacgc           475
```

        <210> 164
        <211> 476
        <212> DNA
        <213> Homo sapien

        <400> 164
```
agcgtggtcg cggccgaggt ctgaggttac atccgtggtg gtggacgtga gccacgaaga       60
ccctgaggtc aagttcaact ggtacgtgga cggcgtggag gtgcataatg ccaagacaaa      120
gccgcgggag gagcagtaca acagcacgta ccgtgtggtc agcgtcctca ccgtcctgca      180
ccaggactgg ctgaatggca aggagtacaa gtgcaaggtc tccaacaaag ccctcccagc      240
ccccatcgag aaaaccatct ccaaagccaa agggcagccc cgagaaccac aggtgtacac      300
cctgccccca tcccgggagg agatgaccaa gaaccaggtc agcctgacct gcctggtcaa      360
aggcttctat cccagcgaca tcgccgtgg agtgggagag caatgggcag ccggagaaca      420
actacaagac cacgcctccc gtgctggact ccgacacctg ccgggcggcc gctcga         476
```

        <210> 165
        <211> 256
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(256)
        <223> n = A,T,C or G

        <400> 165
```
agcgtggttn cggccgaggt cccaaccaag gctgcancct ggatgccatc aaagtcttct       60
gcaacatgga gactggtgag acctgcgtgt accccactca gccagtgtg gcccagaaga      120
actggtacat cagcaagaac cccaaggaca agaggcatgt ctggttcggc gagagcatga      180
ccgatggatt ccagttcgag tatggcggcc agggctccga ccctgccgat gtggacctgc      240
ccgggcggnc gctcga                                                     256
```

        <210> 166
        <211> 332
        <212> DNA
        <213> Homo sapien

        <400> 166
```
agcgtggtcg cggccgaggt caagaacccc gcccgcacct gccgtgacct caagatgtgc       60
cactctgact ggaagagtgg acagtactgg attgacccca accaaggctg caacctggat      120
gccatcaaag tcttctgcaa catggagact ggtgagacct gcgtgtaccc cactcagccc      180
agtgtggccc agaagaactg gtacatcagc aagaacccca aggacaagag gcatgtctgg      240
ttcggcgaga gcatgaccga tggattccag ttcgagtatg gcggccaggg ctccgaccct      300
gccgatgtgg acctgccccgg gcggccgctc ga                                  332
```

        <210> 167
        <211> 332
        <212> DNA
        <213> Homo sapien

        <220>

.5

```
<221> misc_feature
<222> (1)...(332)
<223> n = A,T,C or G

<400> 167
tcgagcggtc gcccgggcag gtccacatcg gcagggtcgg agccctggcc gccatactcg      60
aactggaatc catcggncat gctctcgccg aaccagacat gcctcttgnc cttggggttc     120
ttgctgatgt accagntctt ctgggccaca ctgggctgag tggggtacac gcaggtctca     180
ccantctcca tgttgcanaa gactttgatg gcatccaggt tgcagccttg gttggggtca     240
atccagtact ctccactctt ccagacagac tggcacatct tgaggtcacg gcaggtgcgg     300
gcggggttct tgacctcggt cgcgccaccg ct                                    332


<210> 168
<211> 276
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(276)
<223> n = A,T,C or G


<400> 168
tcgagcggcc gcccgggcag gtcctcctca gagcggtagc tgttcttatt gccccggcag      60
cctccataga tnaagttatt gcangagttc ctctccacgt caaagtacca gcgtgggaag     120
gatgcacggc aaggcccagt gactgcgttg gcggtgcagt attcttcata gttgaacata     180
tcgctggagt ggacttcaga atcctgcctt ctgggagcac ttgggacaga ggaatccgct     240
gcattcctgc tggtggacct cggccgcgac cacgct                                276


<210> 169
<211> 276
<212> DNA
<213> Homo sapien


<400> 169
agcgtggtcg cggccgaggt ccaccagcag gnatgcagcg gattcctctg tcccaagtgc      60
tcccagaagg caggattctg aagaccactc cagcgatatg ttcaactatg aagaatactg     120
caccgccaac gcagtcactg ggccttgccg tqcatccttc ccacgctggt actttgacgt     180
ggagaggaac tcctgcaata acttcatcta tggaggctgc cggggcaata agaacagcta     240
ccgctctgag gaggacctgc ccgggcggcc gctcga                                276


<210> 170
<211> 332
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(332)
<223> n = A,T,C or G

<400> 170
tcgagcggcc gcccgggcag gtccacatcg gcagggtcgg agccctggcc gccatactcg      60
aactggaatc catcggtcat gctctcgccg aaccagacat gcctcttgtc cttggggttc     120
ttgctgatgt accagttctt ctgggccaca ctgggctgag tggggtacac gcaggtctca     180
```

```
ccagtctcca tgttgcagaa gactttgatg gcatccaggt tgcagccttg cttggggtca      240
atccagtact ctccactctt ccagccagaa tggcacatct tgaggtcacg gcangtgcgg      300
gcggggttct tgacctcggc cgcgaccacg ct                                    332
```

        <210> 171
        <211> 333
        <212> DNA
        <213> Homo sapien

        <400> 171
```
agcgtggtcg cggccgaggt caagaaaccc cgcccgcacc tgccgtgacc tcaagatgtg       60
ccactctggc tggaagagtg gagagtactg gattgacccc aaccaaggct gcaacctgga      120
tgccatcaaa gtcttctgca acatggagac tggtgagacc tgcgtgtacc ccactcagcc      180
cagtgtggcc cagaagaact ggtacatcag caagaacccc aaggacaaga ggcatgtctg      240
gctcggcgag agcatgaccg atggattcca gttcgagtat ggcggccagg gctccgaccc      300
tgccgatgtg gacctgcccg ggcggccgct cga                                   333
```

        <210> 172
        <211> 527
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(527)
        <223> n = A,T,C or G

        <400> 172
```
agcgtggtcg cggccgaggt cctgtcagag tggcactggt agaagntcca ggaaccctga       60
actgtaaggg ttcttcatca gtgccaacag gatgacatga aatgatgtac tcagaagtgt      120
cctgnaatgg ggcccatgan atggttgnct gagagagagc ttcttgtcct acattcggcg      180
ggtatggtct tggcctatgc cttatggggg tggccgttgn gggcggtgng gtccgcctaa      240
aaccatgttc ctcaaagatc atttgttgcc caacactggg ttgctgacca naagtgccag      300
gaagctgaat accattcca gtgtcatacc caggatgggt gacgaaaggg gtctttgaa      360
ctgtggaacg aacatccaag atctctgntc catgaagatt ggggtgtgga agggttacca      420
gttggggaag ctcgctgtcc ttttccttcc aatcangggc rcgctcttct gaatattctt      480
cagggcaatg acataaattg tatattcggt tcccggtttc aggccag                    527
```

        <210> 173
        <211> 635
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(635)
        <223> n = A,T,C or G

        <400> 173
```
tcgagcggcc gcccgggcag gtccaccaca cccaattcct tgctggtatc atggcagccg       60
ccacgtgcca ggattaccgg ctacatcatc aagtatgaga agcctggtc tcctcccaga      120
gaagtggtcc ctcggcccg ccctggtgtc acagaggcta ctattactgg cctggaaccg      180
ggaaccgaat atacaattta tgtcattgcc ctgaagaata atcagaagag cgagccctg      240
attggaagga aaaagacaga cgagcttccc caactggtaa cccttccaca ccccaatctt      300
catggaccag agatcttgga tgttccttcc acagttcaaa agaccccttt cgtcacccac      360
```

```
cctgggtata acactggaaa tagtattcag cttcctggca cttctggtca gcaacccagt      420
gttgggcaac aaatgatctt tgangaacat ggntttaggc ggaccacacc ggccacaacg      480
ggcaccccca taaggcatag gccaagaaca tacccgncga atgtaggaca agaagctctn      540
tctcanacaa ncatctcarg ggccccattc cangacactt ctgagtacat canttcatgg      600
catcctggtg gcactgataa aaacccttac agtta                                 635
```

```
        <210> 174
        <211> 572
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(572)
        <223> n = A,T,C or G

        <400> 174
agcgtggtcg cgggcgaggt cctgtcagag tggcactggt agaagttcca ggaaccctga       60
actataaggg ttcttcatca gtgccaacag gatgacatga aatgatgtac tcagaagtgr      120
nctggaatgg ggcccatgag atggttgtct gagagagagc ttcttgtcct acattcggcg      180
ggtatggtct tggcctatgc cttatggggg tggccgttgt gggcggngtg gtccgcctaa      240
aaccatgttc ctcaaagatc atttgttgcc caacactggg ttgctgacca gaagtgccag      300
gaagctgaat accatttcca gtgtcatacc cagggtgggt gacgaaaqgg qtcttttgaa      360
ctgtggaagg aacatccaag atctctggtc catgaagatt ggggtgtgga agggttacca      420
gttggggaag ctcgtctgtc tttttccttc caatcanggg ctcgctcttc tgattattct      480
tcagggcaat gacataaatt gtatattcgg ntcccgggtn cagccaataa taataaccct      540
ctgtgacacc anggcggggc cgaaggnnca ct                                    572
```

```
        <210> 175
        <211> 372
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(372)
        <223> n = A,T,C or G

        <400> 175
agcgtggtcg cggccgaggt cctcaccaga ggtaccacct acaacatcat agtggaggca       60
ctgaaagacc agcagaggca taaggttcgg gaagaggttg ttaccgtggg caactctgtc      120
aacgaaggct tgaaccaacc tacggatgac tcgtgctttg acccctacac agtttcccat      180
tatgccgttg gagatgagtg ggaacgaatg tctgaatcag gctttaaact gttgtgccag      240
tgcttangct ttggaagtgg tcatttcaga tgtgattcat ctagatggtg ccatgacaat      300
ggtgtgaact acaagattgg agagaagtgg gaccgtcagg gagaaaatgg acctgcccgg      360
gcggccgctc ga                                                          372
```

```
        <210> 176
        <211> 372
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(372)
```

<223> n = A,T,C or C

<400> 176

```
tcgagcggcc gcccgggcag gtccattttc tccctgacgg tcccacttct ctccaatctt        60
gtagttcaca ccattgtcat ggcaccatct agatgaatca catctgaaat gaccacttcc       120
aaagcctaag cactggcaca acagtttaaa gcctgattca gacattcgtt cccactcatc       180
tccaacggca taatgggaaa ctgtgtaggg gtcaaagcac gagtcatccg taggttggtt       240
caagccttcg ntgacagagt tgcccacggt aacaacctct tcccgaacct tatgcctctg       300
ctggtctttc agtgcctcca ctatgatgtt gtaggtggta cctctggtga ggacctcggc       360
cgcgaccacg ct                                                            372
```

<210> 177
<211> 269
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(269)
<223> n = A,T,C or G

<400> 177

```
agcgtggccg cggccgaggt ccattggctg gaacggcatc aacttggaag ccagtgatcg        60
tctcagcctt ggttctccag ctaatggtga tggnggtctc agtagcatct gtcacacgag       120
cccttcttgg tgggctgaca ttctccagag tggtgacaac acctgagct ggtctgcttg        180
tcaaagtgtc cttaagagca tagacactca cttcatattt ggcgnccacc ataagtcctg       240
atacaaccac ggaatgacct gtcaggaac                                          269
```

<210> 178
<211> 529
<212> DNA
<213> Homo sapien

<400> 178

```
tcgagcggcc gcccgggcag gtcctcagac cgggttctga gtacacagtc agtgtggttg        60
ccttgcacga tgatatggag agccagcccc tgattggaac ccagtccaca gctattcctg       120
caccaactga cctgaagttc actcaggtca cacccacaag cctgagcgcc cagtggcac        180
cacccaatct tcagctcact ggatatcgag tgcgggtgac ccccaaggag aagaccggac       240
caatgaaaga aatcaacctt gctcctgaca gctcatccgt ggttgtatca ggacttatgg       300
cggccaccaa atatgaagtg agtgtctatg ctcttaagga cactttgaca agcagaccag       360
ctcagggtgt tgtcaccact ctggagaatg tcagcccacc aagaagggct cgtgtgacag       420
atgctactga gaccaccatc accattagct ggagaaccaa gactgagacg atcactggct       480
tccaagttga tgccgttcca gccaatggac ctcggccgcg accacgctt                    529
```

<210> 179
<211> 454
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(454)
<223> n = A,T,C or G

<400> 179

```
aacgtggtcg cggccgaggt ctggccgaac tgccagtgta cagggaagat gtacatgtta      60
tagntcttct cgaagtcccg ggccagcagc tccacggggt ggtctcctgc ctccaggcgc     120
ttctcattct catggatctt cttcacccgc agcttctgct tctcagtcag aaggttgttg     180
tcctcatccc tctcatacag ggtgaccagg acgttcttga gccagtcccg catgcgcagg     240
gggaattcgg tcagctcaga gtccaggcaa gggggatgt atttgcaagg cccgatgtag      300
tccaagtgga gcttgtggcc cttcttggtg ccctccaagg tgcactttgt ggcaaagaag     360
tggcaggaag agtcgaaggt cttgttgtca ttgctgcaca ccttctcaaa ctcgccaatg     420
ggggctgggc agacctgccc gggcggccgc tcga                                 454
```

```
        <210> 180
        <211> 454
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(454)
        <223> n = A,T,C or G

        <400> 180
```

```
tcgagcggcc gcccgggcag gtctgcccag ccccattgg cgagtttgag aaggngtgca       60
gcaatgacaa caagaccttc gactcttcct gccacttctt tgccacaaag tgcaccctgg     120
agggcaccaa gaagggccac aagctccacc tggactacat cgggccttgc aaatacatcc     180
ccccttgcct ggactctgag ctgaccgaat tccccctgcg catgcgggac tggctcaaga     240
acgtcctggt caccctgtat gagagggatg aggacaacaa ccttctgact gagaagcana     300
agctgcgggt gaagaanatc catgagaatg anaagcgcct gnaggcanga gaccacccg      360
tggagctgct ggcccgggac ttcgagaaga actataacat gtacatcttc cctgtacact     420
ggcagttcgg ccagacctcg gccgcgacca cgct                                 454
```

```
        <210> 181
        <211> 102
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(102)
        <223> n = A,T,C or G

        <400> 181
```

```
agcgtggntg cggacgacgc ccacaaagcc attgtatgta gttttanttc agctgcaaan       60
aataccncca gcatccacct tactaaccag catatgcaga ca                        102
```

```
        <210> 182
        <211> 337
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(337)
        <223> n = A,T,C or G

        <400> 182
```

```
tcgagcggtc gcccgggcag gtctggcgg atagcaccgg gcatattttg gaatggatga       60
```

```
ggtctggcac cctgagcagc ccagcgagga cttggtctta gttgagcaat ttggctagga        120
ggatagtatg cagcacggtt ctgagtctgt gggatagctg ccatgaagna acctgaagga        180
ggcgctggct ggtangggtt gattacaggg ctgggaacag ctcgtacact tgccattctc        240
tgcatatact ggntagtgag gcgagcctgg cgctcttctt tgcgctgagc taaagctaca        300
tacaatggct ttgnggacct cggccgcgac cacgctt                                 337
```

        <210> 183
        <211> 374
        <212> DNA
        <213> Homo sapien

        <400> 183
```
tcgagcggcc gcccgggcag gtccattttc tccctgacgg tcccacttct ctccaatctt         60
gtagttcaca ccattgtcat gacaccatct agatgaatca catctgaaat gaccacttcc        120
aaagcctaag cactggcaca acagtttaaa gcctgattca gacattcgtt cccactcatc        180
tccaacggca taatgggaaa ctgtgtaggg gtcaaagcac gagtcatccg taggttggtt        240
caagccttcg ttgacagaag ttgcccacgg taacaacctc ttcccgaacc ttatgcctct        300
gctggtcttt caagtgcctc cactatgatg ttgtaggtgg cacctctggt gaggacctcg        360
gccgcgacca cgct                                                          374
```

        <210> 184
        <211> 375
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(375)
        <223> n = A,T,C or G

        <400> 184
```
agcgtggttt gcggccgagg tcctcaccan aggtgccacc tacaacatca tagtgqaggc         60
actgaaagac cagcagaggc ataaggttcg ggaagaggtt gttaccgtgg gcaactctgt        120
caacgaagcc ttgaaccaac ctacggatga ctcgtgcttt gacccctaca cagnttccca        180
ttatgccgtt ggagatgagt gggaacgaat gtctgaatca ggctttaaac tgttgtgcca        240
gtgcttangc tttggaagtg gtcattcag atgtgattca tctanatggt gtcatgacaa        300
tggtgngaac tacaagattg gagagaagtg gnaccgtcag ggganaaaat ggacctgccc        360
gggcggcncg ctcga                                                         375
```

        <210> 185
        <211> 148
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(148)
        <223> n = A,T,C or G

        <400> 185
```
agcgtggtcg cggccgaggt ctggcttnct gctcanqtga ttatcctgaa ccatccaggc         60
caaataagcg ccggctatgc ccctgnattg gattgccaca cggctcacat tgcatgcaag        120
tttgctgagc tgaaggaaaa gattgatc                                          148
```

        <210> 186

```
        <211> 397
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(397)
        <223> n = A,T,C or G

        <400> 186
tcgagcggcc gcccgggcag gtccaattga aacaaacagt tctgagaccg ttcttccacc      60
actgattaag agtggggngg cgggtattng ggataatatt catttagcct tctgagcttt     120
ctgggcagac ttggtgacct tgccagctcc agcagccttc tggtccactg ctttgatgac     180
acccaccgca actgtctgtc tcatatcacg aacagcaaag cgacccaaag gtggatagtc     240
tgagaagctc tcaacacaca tgggcttgcc aggaaccata tcaacaatgg gcagcatcac     300
cagacttcaa gaatttaagg gccatcttcc agcttttac cagaacggcg atcaatcttt      360
tccttcagct cagcaaactt gcatgcaatg tgagccg                             397


        <210> 187
        <211> 584
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(584)
        <223> n = A,T,C or G

        <400> 187
tcgagcggcc gcccgggcag gtccagaggg ctgtgctgaa gtttgctgct gccactggag      60
ccactccaat tgctggccgc ttcactcctg gaaccttcac taaccagatc caggcagcct     120
tccgggagcc acggcttctt gtgggntactg accccaggqc tgaccaccag cctctcacgg    180
aggcatctta tgttaaccta cctaccattg cgctgtgtaa cacagattct cctctgcgct     240
atgtggacat tgccatccca tgcaacaaca agggagctca ctcagngggg tttgatgtgg     300
tggatgctgg ctcgggaagt tctgcgcatg cgtgcacca tttccgtga acacccatgg      360
gangncatgc ctgatctgga cttctacaga gatcctgaag agattgaaaa agaagaacaa    420
gctgnttgct ganaaagcaa gtgaccaagg angaaatttc anggqtgaaa nggactuctc    480
ccgctcctga attcactgct actcaacctg angntgcaga ctggtcttga aggngnacan   540
gggccctctg ggcctattta agcancttcg gtcgcgaaca cgnt                     584


        <210> 188
        <211> 579
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(579)
        <223> n = A,T,C or G

        <400> 188
agcgtgngtc gcggccgagg tgctgaatag gcacagaggg cacctgtaca ccttcagacc      60
agtctgcaac ctcaggctga gtagcagtga actcaggagc gggagcagtc cattcaccct     120
gaaattcctc cttggncact gccttctcag cagcagcctg ctcttctttt tcaatctctt     180
caggatctct gtagaagtac agatcaggca tgacctccca tgggtgttca cgggaaatgg     240
```

```
tgccacgcat gcgcagaact tcccgagcca gcatccacca catcaaaccc actgagtgag      300
ctcccttgtt gttgcatggg atgggcaatg tccacatagc gcagaggaga atctgtgtta      360
cacagcgcaa tggtaggtag gttaacataa gatgcctccg cgagaagctg gtggtcagcc      420
ctggggtcaa gtaaccacaa gaagccgtgg ctcccggaag gctgcctgqa tctggttagt      480
gaaggntcca ggagtgaagc ggccaacaat tggagtggct tcagtggcaa gcagcaaact      540
tcagcacaag ccctctggac ctgcccggcg gccgctcga                            579
```

```
        <210> 189
        <211> 374
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(374)
        <223> n = A,T,C or G

        <400> 189
tcgagcggcc gccgggcag gtccattttc tccctgacgg nccacttct ctccaatctt        60
gtagttcaca ccattgtcat ggcaccatct agatgaatca catctgaaat gaccacttcc      120
aaagcctaag cactggcaca acagtttaaa gcctgattca gacattcgtt cccactcatc      180
tccaacggca taatgggaaa ctgtgtaggg gtcaaagcac gagtcatcca taggttggtt      240
caagccttcg ttgacagagt tgcccacggt aacaacctcn rcnccgaacc ttatgcctct      300
gctgggcttt cagngcctcc actatgatgn tgtaggggg cacctctggn gangacctcg      360
gccgcgacca cgct                                                       374
```

```
        <210> 190
        <211> 373
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(373)
        <223> n = A,T,C or G

        <400> 190
agcgtggtcg cggccgaggt cctcaccaga ggtgccacct acaacatcat agtggaggca       60
ctgaaagacc agcagaggca taaggctcgg gaagaggttg ttaccgtggg caactctgtc      120
aacgaaggct tgaaccaacc tacggatgac tcgtgctttg accctacac agtttcccat       180
tatgccgttg gagatgactg ggaacgaatg tctgaatcag gctttaaact gttgtgccag      240
tgcttangct ttggaagtgg gtcatttcag atgtgattca tctagatggt gccatgacaa      300
tggngngaac tacaagattg gagagaagtg gnaccgncag ggagaaaatg gacctgcccg      360
ggcggccgct cga                                                        373
```

```
        <210> 191
        <211> 354
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(354)
        <223> n = A,T,C or G
```

```
        <400> 191
agcgtggtcg cggccgaggt ccacatcggc agggtcggag ccctggccgc catactcgaa      60
ctggaatcca tcggtcatgc tctcgccgaa ccagacatgc ctcttgtcct tggggttctt     120
gctgatgtac cagttcttct gggccacact gggctgagtg gggtacacgc aggtctcacc     180
agtctccatg ttgcagaaga ctttcatggc atccaggntg caaccttggt tggggtcaat     240
ccagtactct ccactcttcc agccagagtg gcacatcttg aggtcacggc aggtgcggnc     300
gggggntttt gcggctgccc tctggncttc ggntgtnctc natctgctgg ctca           354


        <210> 192
        <211> 587
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(587)
        <223> n = A,T,C or G

        <400> 192
tcgagcggcc gccgggcag gtctcgcggt cgcactggtg atgctggtcc tgttggtccc      60
cccggccctc ctggacctcc tggcccccct ggtcctccca gcgctggttt cgacttcagc     120
ttcctgcccc agccacctca agagaaggct cacgatggtg gccgctacta ccgggctgat     180
gatgccaatg tggttcgtga ccgtgacctc gaggtggaca ccaccctcaa gagcctgagc     240
cagcagatcg agaacatccg gagcccagag ggcagncgca agaacccogc ccgcacctgc     300
cgtgacctca agatgtgcca ctctgactgg aagagtggag agtactggat tgaccccaac     360
caagctgcaa cctggatgcc atcaaagtct tctgcaacat ggagactggt gagacctgcg     420
tgtaccccac tcagcccagt gtggcccaaa aganctggta catcagcaag aacccccaagg     480
acaagaagca tgtctggttc ggcgagaaca tgaccgatgg attccagttc gagtatggcg     540
ggcagggctc cgaccctgcc gatggggacc ttggccgcga acacgct                   587


        <210> 193
        <211> 98
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(98)
        <223> n - A,T,C or G

        <400> 193
agcgtggnng cggccgaggt ataaatatcc agnccatatc ctccctccac acgctganag      60
atgaagctgt ncaaagatct caggtggan aaaaccat                              98


        <210> 194
        <211> 240
        <212> DNA
        <213> Homo sapien

        <400> 194
tcgagcggcc gccgggcag gtccttcaga cttggactgt gtcacactgc caggcttcca      60
gggctccaac ttgcagacgg cctgttgtgg gacagtctct gtaatcgcga aagcaaccat     120
ggaagacctg ggggaaaaca ccatggtttt atccaccctg agatctttga acaacttcat     180
ctctcagcgt gcggagggag gctctggact ggatatttct acctcggccg cgaccacgct     240
```

```
<210> 195
<211> 400
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(400)
<223> n = A,T,C or G

<400> 195
cgagcgggcg accgggcagg tncagactcc aatccanana accatcaagc cagatgtcag       60
aagctacacc atcacaggtt tacaaccagg cactgactac aaganctacc tgcacacctt      120
gaatgacaat gctcggagct cccctgtggt catcgacgcc tccactgcca ttgatgcacc      180
atccaacctg cgtttcctgg ccaccacacc caattccttg ctggtatcat ggcagccgcc      240
acgtgccagg attaccggta catcatcnag tatganaagc ctgggcctcc tcccagagaa      300
gnggtccctc ggccccgccc tgntgtccca naggntacta ttactgngcc ngcaaccggc      360
aaccgatatc nattttgnca ttggccttca acaataatta                           400
```

```
<210> 196
<211> 494
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(494)
<223> n = A,T,C or G

<400> 196
agcgtggttc gcggccgang tcctgtcaga gtggcactgg tagaagttcc aggaaccctg       60
aactgtaagg gttcttcatc agngccaaca ggatgacatg aaatgatgta ctcagaagtg      120
tcctggaatg gggcccatga gatggttgtc tgagagagag cttcttgncc tgtctttttc      180
cttccaatca ggggctcgct cttctgatta ttcttcaggg caatgacata aattgtatat      240
tcgggtcccg gntccaggcc agtaatagta ncctctgtga caccaggggcg gngccgaggg      300
accacttctc tgggaggaca cccaggcttc tcatacttga tgatgtaacc ggtaatcctg      360
gcacgtggcg gctgccatca taccagcaag gaattggggt gtggtggcca ggaaacgcag      420
gttggatggn gcatcaatgg cagtggaggc cgtcgatgac cacaggggga gctccgacat      480
tgtcattcaa ggtg                                                        494
```

```
<210> 197
<211> 118
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(118)
<223> n = A,T,C or G

<400> 197
agcgtggncg cggccgaggt gcagcgcggg ctgtgccacc ttctgctctc tgcccaacga       60
taaggagggt ncctgccccc aggagaacat taactntccc cagctcggcc tctgccgg       118
```

```
<210> 198
```

```
        <211> 403
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(403)
        <223> n = A,T,C or G

        <400> 198
tcgagcggcc gcccgggcag gttttttttg ctgaaagtgg ntactttatt ggntgggaaa       60
gggagaagct gtggtcagcc caagagggaa tacagagncc cgaaaaaggg gagggcaggt      120
gggctggaac cagacgcagg gccaggcaga aactttctct cctcactgct cagcctggtg      180
gtggctggag ctcanaaatt gggagtgaca caggacacct tcccacagcc attgcqgcgg      240
catttcatct ggccaggaca ctggctgtcc acctggcact ggtcccgaca gaagcccgag      300
ctgggaaag ttaatgttca cctgggggca ggaaccctcc ttatcattgn gcagagagca      360
gaaggtggca cagcccgcgc tgcacctcgg ccgcgaccac gct                        403

        <210> 199
        <211> 167
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(167)
        <223> n = A,T,C or G

        <400> 199
tcgagcggcc gcccgggcag gtccaccata agtcctgara caaccacgga tgagctgtca       60
ggagcaaggt tgatttcttt cattggtccg gncttctcct tgggggncac ccgcactcga      120
tatccagtga gctgaacatt gggtggcgtc cactgggcgc tcaggct                    167

        <210> 200
        <211> 252
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(252)
        <223> n = A,T,C or G

        <400> 200
tcgagcggtt cgcccgggca ggtccaccac acccaattcc ttgctggtat catggcagcc       60
gccacgtgcc aggattaccg gctacatcat caagtatgag aagcctgggt ctcctcccag      120
agaagcggtc cctcggcccc gccctggtgt cacagagqct actattactg gcctggaacc      180
gggaaccgaa tatacaattt atgtcattqn cctgaagaat aatcannaan agcgancccc      240
tgattggaag ga                                                          252

        <210> 201
        <211> 91
        <212> DNA
        <213> Homo sapien
```

```
        <400> 201
agcgtggtcg cggccgaggt tgtacaagct tttttttttt tttttttttt ttttttttt          60
tttttttttt tttttttttt tttttttttt t                                        91


        <210> 202
        <211> 368
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(368)
        <223> n - A,T,C or G


        <400> 202
tcgagcggnc gcccgggcag gtctgccaac accaagattg gccccgccg catccacaca          60
gtccgtgtgc ggggaggtaa caagaaatac cgtgccctga agttggacgt ggggaatttc        120
tcctggggct cagagtgttg tactcgtaaa acaaggatca tcgatgttgt ctacaatgca        180
tctaataacg agctggttcg taccaagacc ctggtgaaga attgcatcgt gctcatcgac        240
agcacaccgt accgacagtg gtacgagtcc cactatgcgc tgccctggg ccgcaagaag         300
ggagccaagc tgactcctga ggaagaagag attttaaaca aaaacgatc taanaaaaa          360
aaaacaat                                                                 368


        <210> 203
        <211> 340
        <212> DNA
        <213> Homo sapien


        <400> 203
agcgtggtcg cggccgaggt gaaatggtat tcagcttcct ggcacttctg gtcagcaacc         60
cagtgttggg caacaaatga tcttgagga acatggtttt aggcggacca caccgccac          120
aacggccacc cccataaggc ataggccaag accataccg ccgaatgtag gaccagaagc         180
tctctctcag acaaccatct catgggcccc attccaggac acttctgagt acatcatttc        240
atgtcatcct gttggcactg atgaagaacc cttacagttc agggttcctg gaacttctac        300
cagtgccact ctacaggac ctgcccgggc ggccgctcga                               340


        <210> 204
        <211> 341
        <212> DNA
        <213> Homo sapien


        <400> 204
tcgagcggcc gcccgggcag gtcctgtcag agtggcactg gtagaagttc caggaacct         60
gaactgtaag ggttcttcat cagtgccaac aggatgacat gaaatgatgt actcagaagt        120
gtcctggaat ggggcccatg agatggttgt ctgagagaga gcttcttgtc ctacattcgg        180
cgggtatggt cttggcctat gccttatggg ggtggccgtt gtgggcggtg tggtccgcct        240
aaaaccatgt tcctcaaaga tcatttgttg cccaacactg ggttgctgac cagaagtgcc        300
aggaagctga ataccatttc acctcggccg cgaccacgct a                            341


        <210> 205
        <211> 770
        <212> DNA
        <213> Homo sapien

        <220>
```

```
        <221> misc_feature
        <222> (1)...(770)
        <223> n = A,T,C or G

        <400> 205
tcgagcggcc gcccgggcag gtctcccttc ttgcggccca ggggcagcgc atagtgggac    60
tcgtaccact gtcggtacgg tgtgctgtcg atgagcacga tgcaattctt caccagggtc   120
ttggtacgaa ccagctcgtt attagatgca ttgtagacaa catcgatgat ccttgtttta   180
cgagtacaac actctgagcc ccaggagaaa ttccccacgt ccaacctcag ggcacggtat   240
ttcttgttac ctccccgcac acggactgtg tcgatgcggc gggggccaag ctgactcctg   300
aggaagaaga gattttaaac aaaaaacgat ctaaaaaaat tcagaagaaa tatgatgaaa   360
ggaaaaagaa tgccaaaatc agcagtctcc tggaggagca gttccagcag ggcaagcttc   420
ttgcgtgcat cgcttcaagg ccgggacagt gtgaccgagc agatggctat gtgctagagg   480
gcaaagaagt ggagttctat cttaagaaaa tcagggccca gaatggtgng tcttcaacta   540
atccaaaggg gagtttcaga ccagtgcaat cagcaaaaac attgatactg ntggccaaat   600
ttattggtgc agggcttgca cantangann ggctgggtct tggggcttgg attggnacaa   660
gctttggcag ccttttcttt ggttttgcca aaaaccttct gntgaagang anacctnggg   720
cggacccctt aaccgattcc acnccnggng gcgttctang gnccccnttg               770

        <210> 206
        <211> 810
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(810)
        <223> n = A,T,C or G

        <400> 206
agcgtggtcg cggccgaggt ctgctgcttc agcgaagggt ttctggcata accaatgata    60
aggctgccaa agactgttcc aataccagca ccagaaccag ccactcctac tgttgcagca   120
cctgcaccaa taaatttggc agcagtatca atgtctctgc tgattgcact ggtctgaaac   180
tcccttggga ttagctgaga cacaccattc tgggcccrga tttcctaag atagaactcc   240
aactctttgc cctctagcac atagccatct gctcggtcac actgtcccgg ccttgaagcg   300
atgcacgcaa gaagcttgcc ctgctggaac tgctcctcca ggagactgct gattttggca   360
ttctttttcc tttcatcata tttcttctga attttttag atcgtttttt gtttaaaatc   420
tcttcttcct caggagtcag cttggccccc gccgcatcca cacagtccgt gtgcggggag   480
gtaacaagaa ataccgtgcc ctgaggttgg acgtggggaa tttctcctgg ggctcagagt   540
ggtgtactcg taaaacaagg atcatcgatg gtgnctacaa tgcatctaat aacgagctgg   600
gtcggaccca aagaacctgg ngaanaaatg gatcgnctca tcgacaggac accgtacccg   660
acaggggnac gantcccact atgcgcttgc ccctgggccg caanaaagga aaactgcccg   720
ggcggccntc gaaagcccaa ttntggaaaa aatccatcac actgggnggc cngtcgagca   780
tgcatntana ggggcccatt cccctnann                                     810

        <210> 207
        <211> 257
        <212> DNA
        <213> Homo sapien

        <400> 207
tcgagcggcc gcccgggcag gtccccaacc aaggctgcaa cctggatgcc atcaaagtct    60
tctgcaacat ggagactggt gagacctgcg tgtacccac tcagcccagt gtggcccaga   120
agaactggta catcagcaag aaccccaagg acaagagca tgtctggttc ggcgagagca   180
tgaccgatgg attccagttc gagtatggcg gccagggctc cgaccctgcc gatgtggacc   240
```

tcggccgcga ccacgct   257

       \<210> 208
       \<211> 257
       \<212> DNA
       \<213> Homo sapien

       \<400> 208
```
agcgtggtcg cggccgaggt ccacatcggc agggtcggag ccctggccgc catactcgaa    60
ctggaatcca tcggtcatgc tctcgccgaa ccagacatgc ctcttgtcct tggggttctt   120
gctgatgtac cagttcttct gggccacact gggctgagtg gggtacacgc acgtctcacc   180
agtctccatg ttgcagaaga ctttgatggc atccaggttg cagccttggt tcgggacctg   240
cccgggcggc cgctcga                                                  257
```

       \<210> 209
       \<211> 747
       \<212> DNA
       \<213> Homo sapien

       \<220>
       \<221> misc_feature
       \<222> (1)...(747)
       \<223> n = A,T,C or G

       \<400> 209
```
tcgagcggcc gcccgggcag gtccaccaca cccaattcct tgctggtatc atggcagccg    60
ccacgtgcca ggattaccgg ctacatcatc aagtatgaga agcctgggtc tcctcccaga   120
gaagtggtcc ctcggccccg ccctggtgtc acagaggcta ctattactgg cctggaaccg   180
ggaaccgaat atacaattta tgtcattgcc ctgaagaata atcagaagag cgagcccctg   240
attggaagga aaaagacaga cgagcttccc caactggtaa cccttccaca ccccaatctt   300
catggaccag agatcttgga tgttccttcc acagttcaaa agaccccttt cgtcacccac   360
cctgggtatg acactggaaa tggtattcag cttcctggca cttctggtca gcaacccagt   420
gttgggcaac aaatgatctt tgaggaacat ggntttaggc ggaccacacc gcccacaacg   480
gccaccccca taaggcatag gccaagacca tacccgccga atgtaggaca agaagctntn   540
tntcanacac catntnatgg gccccatncc aggacacttc tgagtacatc atttatgnca   600
tctgtggcac ttgatgaaaa cccttacagt tcagggttct ggaactttta ccaggcctnt   660
tacaggactn ggccggacnc cttaagccna ttncaccctg gggcgttcta nggtcccact   720
cgnncactgg ngaaaatggc tactgtn                                       747
```

       \<210> 210
       \<211> 872
       \<212> DNA
       \<213> Homo sapien

       \<220>
       \<221> misc_feature
       \<222> (1)...(872)
       \<223> n = A,T,C or G

       \<400> 210
```
agcgtggtcg cggccgaggt ccactagagg tctgtgtgcc attgcccagg cagagtctct    60
gcgttacaaa ctcctaggag ggcttgctgt gcggagggcc tgctatggtg tgctgcggtt   120
catcatggag agtggggcca aaggctgcga ggttgtggtg tctgngaaac tccnaggaca   180
ngaqggctaa attccatqaa gtttgtggat ggcctgatga tccacaatcg gagaccctgt   240
taactactac cgtctnaccn cctgctgtnc ncccccnttt ctgctnaana catnqqgntn   300
```

```
ntncttgncc ntccttgggt ngaanatnna atngcctncc cnttcntanc nctactngnt      360
ccananttgg cctttaaana atccnccttg cctnnncac tgttcanntn tttnntcgta      420
aaccctatna nttnnattan atnntnnnnn nctcaccccc ctcntcattn anccnatang      480
ctnnnaanrc cttnannccc cccnccccnt ncnctcntac tnantncttc tnncccatta      540
cnnagctctt tcntttaana caatgnngcc nngctctnca tntctacnat ntgnnnaatn      600
ccccncccc cnancgnntt tttgacctnn naacctcctt tcctcttccc tncnnaaatt      660
ncnnanttcc ncnttccnnc ntttcggntn ntcccatnct ttccannnct tcantctanc      720
ncnctncaac ttattttcct ntcatccctt nttctttaca nnccccctnn tctactcnnc      780
nnttncatta natttgaaac tnccacnnct anttncctcn ctctacnntt ttattttncg      840
ntcnctctac ntaatanttt aatnanttnt cn                                   872
```

```
        <210> 211
        <211> 517
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(517)
        <223> n = A,T,C or G

        <400> 211
tcgagcggcc gcccgggcag gtctgccaag gagaccctgt tatgctgtgg ggactggctg       60
gggcatggca ggcggctctg gcttcccacc cttctgttct gagatggggg tggtgggcag      120
tatctcatct ttgggttcca caatgctcac gtggtcaggc aggggcttct tagggccaat      180
cttaccagtt gggtcccagg gcagcatgat cttcaccttg atgcccagca cacctgtct       240
gagcaacacg tggcgcacaa gcagtgtcaa cgtagtaagt taacagggtc tccgctgtgg      300
atcatcaggc catccacaaa cttcatggat ttagccctct gtcctcggag tttcccaqac      360
accacaacct cgcagccttt ggccccactc tccatgatga accgcagcac accatagcag      420
gccctccgca caagcaagcc ctcctaagaa tttgtaacgc ananactctg ctggcaatgg      480
cacacaaacc tctagtggac ctcggncgcg accacgc                              517
```

```
        <210> 212
        <211> 695
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(695)
        <223> n = A,T,C or G

        <400> 212
tcgagcggcc gcccgggcag gtctggtcca ggatagcctg cgagtcctcc tactgctact       60
ccagacttga catcatatga atcatactgg ggagaataqt tctgaggacc agtagggcat      120
gattcacaga ttccaggggg gccaggagaa ccaggggacc ctggttgtcc tggaatacca      180
gggtcaccat ttctcccagg aataccagga gggcctggat ctcccttggg gccttqaqqt      240
ccttgaccat taggagggcg agtaggagca gttggaggct gtgggcaaac tgcacaacat      300
tctccaaatg gaatttctgg gttggggcag tctaattctt gatccgtcac atattatgtc      360
atcgcagaga acggatcctg agtcacagac acatatttgg catggttctg gcttccagac      420
atctctatcc gncataggac tgaccaagat gggaacatcc tccttcaaca agcttnctgt      480
tgtgccaaaa ataatagtgg gatgaagcag accgagaagt anccagctcc cctttttgca      540
caaagcntca tcatgtctaa atatcagaaa tgagacttct ttgggcaaaa aaggagaaaa      600
agaaaaagca gttcaaagta nccnccatca agttggttcc ttgcccnttc agcacccggg      660
ccccgttata aaacacctng ggccggacc  ccctt                                695
```

```
<210> 213
<211> 804
<212> DNA
<213> Homo sapien

<220>
<221> misc feature
<222> (1)...(804)
<223> n = A,T,C or G

<400> 213
agcgtggtcg cggccgaggt gttttatgac gggcccggtg ctgaagggca gggaacaact       60
tgatggtgct actttgaact gcttttcttt tctccttttt gcacaaagag tctcatgtct      120
gatatttaga catgatgagc tttgtgcaaa aggggagctg gctacttctc gctctgcttc      180
atcccactat tattttggca caacaggaag ctgttgaagg aggatgttcc catcttggtc      240
agtcctatgc ggatagagat gtctggaagc cagaaccatg ccaaatatgt gtctgtgact      300
caggatccgt tctctgcgat gacataatat gtgacgatca agaattagac tgcccnaacc      360
cagaaattcc atttggagaa tcttgtgcag tttgcccaca gcctccaact gctcctactc      420
gccctcctaa tggtcaagga cctcaaggcc ccaagggaga tccaggccct cctggtattc      480
ctgggagaaa tggtgaccct ggtattccag gacaaccagg gtcccctggt tctcctggcc      540
cccctggaat cnggngaatc atgccctact ggtcctcaaa ctattctccc anatgattca      600
tatgatgtca agtctgggat agcnagtang gangggactcg caggctattc tggaccanac    660
ctgccggggg ggcgttcgaa agcccgaatc tgcananntn cnttcacact ggcggccgtc      720
gagctgcttt aaaagggcca ttccnccttt agngngggggg antacaatta ctnggcggcg      780
ttttanancg cgngnctggg aaat                                             804
```

```
<210> 214
<211> 594
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(594)
<223> n = A,T,C or G

<400> 214
agcgtggtcg cggccgaggt ccacatcggc agggtcggag ccctggccgc catactcgaa       60
ctggaatcca tcggtcatgc tctcgccgaa ccagacatgc ctcttgtcct tggggttctt      120
gctgatgtac cagttcttct gggccacact gggctgagtg gggtacacgc aggtctcacc      180
agtctccatg ttgcagaaga ctttgatggc atccaggttg cagccttggt tggggtcaat      240
ccagtactct ccactcttcc agtcagagtg gcacatcttg aggtcacggc aggtgcgggc      300
ggggttcttg cggctgccct ctgggctccg gatgttctcg atctgctggc tcaggctctt      360
gagggtggtg tccacctcga ggtcacggtc acgaaccaca ttggcatcat cagcccggta      420
gtagcggcca ccatcgtgag ccttctcttg angtggctgg ggcaggaact gaagtcgaaa      480
ccagcgctgg gaggaccagg gggaccaana ggtccaggaa gggcccgggg gggaccaaca      540
ggaccagcat caccaagtgc gacccgcgag aacctgcccg gccgnccgct cgaa            594
```

```
<210> 215
<211> 590
<212> DNA
<213> Homo sapien

<220>
```

```
        <221> misc_feature
        <222> (1)...(590)
        <223> n = A,T,C or G

        <400> 215
tcgagcgnnc gcccgggcag gtctcgcggt cgcactggtg atgctggtcc tgttggtccc      60
cccggccctc ctggacctcc tggtccccct ggtcctccca gcgctggttt cgacttcagc     120
ttcctgcccc agccacctca agagaaggct cacgatggtg gccgctacta ccgggctgat     180
gatgccaatg tggttcgtga ccgtgacctc gaggtggaca ccaccctcaa gagcctgagc     240
cagcagatcg agaacatccg gagcccagag ggcagccgca agaacccgc ccgcacctgc      300
cgtgaccta agatgtgcca ctctgactgg aagagtggag agtactggat tgaccccaac      360
caaggctgca acctggatgc catcaaagtc ttctgcaaca tggagactgg tgagacctgc     420
gtgtaccca ctcagcccag tgtggccag aagaactggt acatcagcaa gaaccccaag      480
gacaagaggc atgtctggtt cggcgagagc atgaccgatg gattccagtt cgagtatggc     540
ggccagggct cccaccctgc cgatgtggac ctccggccgc gaccacccct                590

        <210> 216
        <211> 801
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(801)
        <223> n = A,T,C or G

        <400> 216
tngagcggcc gcccgggcag gntgnnaacg ctggtcctgc tggtcctcct ggcaaggctg      60
gtgaagatgg tcaccctgga aaacccggac gacctggtga gagaggagtg gttggaccac     120
agggtgctcg tggtttccct ggaactcctg gacttcctgg cttcaaaggc attaggggac     180
acaatggtct ggatggattg aagggacagc ccggtgctcc tggtgtgaag ggtgaacctg     240
gtgcccctgg tgaaaatgga actccaggtc aaacaggagc ccgtgggctt cctggtgaga     300
gaggaccgtg ttggtgcccc tggcccanac ctcggccgcg accacgctaa gcccgaattt     360
ccagcacact ggnggccgtt actantggat ccgagctcgg taccaagctt ggcgtaatca     420
tggtcatagc tgtttcctgn gtgaaattgt tatccgctca caatttcaca cancatacga     480
agccggaaag cataaagtgt aaagccttgg ggtgctaatg agtgagctaa ctcncattaa     540
attgcgttgc gctcactgcc cgcttttcca nnngggaaac cntggcntng ccngcttgcn     600
ttaantgaaa tccgccnacc cccggggaaa agncggtttg cngtattggg gcncttttc      660
cctttcctcg gnttacttga nttantgggc tttggncgnt tcgggttgng gcgancnggt     720
tcaacntcac nccaaaggng gnaanacggt tttcccanaa tccgggggnt ancccaangn     780
aaaacatnng ncnaangggc t                                                801

        <210> 217
        <211> 349
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(349)
        <223> n = A,T,C or G

        <400> 217
agcgtggttn gcggccgagg tctgggccag gggcaccaac acgtcctctc tcaccaggaa      60
gcccacgggc tcctgtttga cctggagttc catttcacc aggggcacca ggttcaccct      120
```

```
tcacaccagg agcaccgggc tgtccttca atccatncag accattgtgn cccctaatgc     180
ctttgaagcc aggaagtcca ggagttccag ggaaaccacc gagcaccctg tggtccaaca     240
actcctctct caccaggtcg tccgggtttt ccagggtgac catcttcacc agccttgcca     300
ggaggaccag caggaccagc gttaccaacc tgcccgggcg gccgctcga                 349
```

        <210> 218
        <211> 372
        <212> DNA
        <213> Homo sapien

        <400> 218
```
tcgagcggcc gcccgggcag gtccattttc tccctgacgg tcccacttct ctccaatctt     60
gtagttcaca ccattgtcat ggcaccatct agatgaatca catctgaaat gaccacttcc     120
aaagcctaag cactggcaca acagtttaaa gcctgattca gacattcgtt cccactcatc     180
tccaacggca taatgggaaa ctgtgtaggg gtcaaagcac gagtcatccg taggttggtt     240
caagccttcg ttgacagagt tgcccacggt aacaacctct tcccgaacct tatgcctctg     300
ctggtctttc agtgcctcca ctatgatgtt gtaggtggca cctctggtga ggacctcggc     360
cgcgaccacg ct                                                         372
```

        <210> 219
        <211> 374
        <212> DNA
        <213> Homo sapien

        <400> 219
```
agcgtggtcg cggccgaggt cctcaccaga ggtgccacct acaacatcat agtggaggca     60
ctgaaagacc agcagaggca taaggttcgg gaagaggttg ttaccgtggg caactctgtc     120
aacgaaggct tgaaccaacc tacggatgac tcgtgctttg acccctacac agtttcccat     180
tatgccgttg gagatgagtg ggaacgaatg tctgaatcag gctttaaact gttgtgccag     240
tgcttaggct ttggaagtgg tcatttcaag atgtgattca tctagatggt gccatgacaa     300
tggtgtgaac tacaagattg gagagaagtg ggaccgtcag ggagaaaatg gacctgcccg     360
ggccggccgc tcga                                                       374
```

        <210> 220
        <211> 828
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(828)
        <223> n = A,T,C or G

        <400> 220
```
tcgagcgnnc gcccgggcag gtccagtagt gccttcggga ctgggttcac cccaggtct     60
gcggcagttg tcagccgcc agccccgctg gcctccaaag catgtgcagg agcaaatggc     120
accgagatat tccttctccc actgttctcc tacgtggtat gtcttcccat catcgtaaca     180
cgttgcctca tgagggtcac acttgaattc tccttttccg ttcccaagac atgtgcagct     240
catttggctg gctctatagt ttggggaaag tttgttgaaa ctgtgccact gacctttact     300
tcctccttct ctactggagc tttcgtacct tccacttctg ctgttggtaa aatggtggat     360
cttctatcaa tttcattgac agtacccact tctcccaaac atccaggaa ataqtgattt     420
cagagcgatt aggagaacca aattatgggg cagaaataag gggctttccc acaggttttc     480
ctttggagga agatttcagt ggtgacttta aaagaatact caacagtgtc ttcatcccca     540
tagcaaaaga agaaacngta aatgatggaa ngcttctgga gatgccnnca tttaagggac     600
ncccagaact tcaccatcta caggacctac ttcagtttac annaagncac atantctgac     660
```

```
tcanaaagga cccaagtagc nccatggnca gcacttttag cctttcccct ggggaaaann       720
ttacnttctt aaancctngg ccnngacccc cttaagncca aattntggaa aanttccntn       780
cnnctggggg gcngttcnac atgcntttna agggcccaat tnccccnt                    828
```

```
        <210> 221
        <211> 476
        <212> DNA
        <213> Homo sapien

        <400> 221
tcgagcggcc gcccgggcag gtgtcggagt ccagcacggg aggcgtggtc ttgtagttgt        60
tctccggctg cccattgctc tcccactcca cggcgatgtc gctgggatag aagcctttga       120
ccaggcaggt caggctgacc tggttcttgg tcatctcctc ccgggatggg ggcagggtgt       180
acacctgtgg ttctcggggc tgccctttgg ctttggagat ggttttctcg atggggggctg      240
ggagggcttt gttggagacc ttgcacttgt actccttgcc attcagccag tcctggtgca       300
ggacggtgag gacgctgacc acacggtacg tgctgttgta ctgctcctcc cgcggctttg       360
tcttggcatt atgcaccttc acgccgtcca cgtaccagtt gaacttgacc tcagggtctt       420
cgtggctcac gtccaccacc acgcatgtaa cctcagacct cggccgcgac cacgct          476
```

```
        <210> 222
        <211> 477
        <212> DNA
        <213> Homo sapien

        <400> 222
agcgtggtcg cggccgaggt ctgaggttac atgcgtggtg gtggacgtga gccacgaaga        60
ccctgaggtc aagttcaact ggtacgtgga cggcgtggag gtgcataatg ccaagacaaa       120
gccgcgggag gagcagtaca acagcacgta ccgtgtggtc agcgtcctca ccgtcctgca       180
ccaggactgg ctgaatggca aggagtacaa gtgcaaggtc tccaacaaag ccctcccagc       240
ccccatcgag aaaaccatct ccaaagccaa agggcaagcc ccgagaacca caggtgtaca       300
ccctgccccc atcccgggag gagatgacca gaaccaggt cagcctgacc tgcctggtca         360
aaggcttcta tcccagcgac atcgccgtgg agtgggagag caatgggcag ccggagaaca       420
actacaagac cacgcctccc gtgctggact ccgacacctg cccgggcggc cgctcga         477
```

```
        <210> 223
        <211> 361
        <212> DNA
        <213> Homo sapien

        <400> 223
tcgagcggcc gcccgggcag gttgaatggc tcctcgctga ccaccccggt gctggtggtg        60
ggtacagagc tccgatgggt gaaaccattg acatagagac tgtccctgtc cagggtgtag       120
gggcccagct cagtgatgcc gtgggtcagc tggctcagct tccagtacag ccgctctctg       180
tccagtccag ggcttttggg gtcaggacga tgggtgcaga cagcatccac tctggtggct       240
gccccatcct tctcaggcct gagcaaggtc agtctgcaac cagagtacag agagctgaca       300
ctggtgttct tgaacaaggg cataagcaga ccctgaagga cacctcggcc gcgaccacgc       360
t                                                                       361
```

```
        <210> 224
        <211> 361
        <212> DNA
        <213> Homo sapien

        <400> 224
agcgtggtcg cggccgaggt gtccttcagg gtctgcttat gcccttgttc aagaacacca        60
```

```
gtgtcagctc tctgtactct ggttgcagac tgaccttgct caggcctgag aaggatgggg    120
cagccaccag agtggatgct gtctgcaccc atcgtcctga ccccaaaagc cctggactgg    180
acagagagcg gctgtactgg aagctgagcc agctgaccca cggcatcact gagctgggcc    240
cctacaccct ggacagggac agtctctatg tcaatggttt cacccatcgg agctctgtac    300
ccaccaccag caccggggtg gtcagcgagg agccattcaa cctgcccggg cggccgctcg    360
d                                                                     361
```

<210> 225
<211> 766
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(766)
<223> n = A,T,C or G

<400> 225

```
agcgtggtcg cggccgaggt cctgtcagag tggcactggt agaagttcca ggaaccctga     60
actgtaaggg ttcttcatca gtgccaacag gatgacatga aatgatgtac tcagaagtgt    120
cctggaatgg ggcccatgag atggttgtct gagagagagc ttcttgtcct acattccgcg    180
ggtatggtct tggcctatgc cttatggggg tggccgttgt gggcggtgtg gtccgcctaa    240
aaccatgttc ctcaaagatc atttgttgcc caacactggg ttgctgacca gaagtgccag    300
gaagctgaat accatttcca gtgtcatacc cagggtgggt gacgaaacgg gtcttttgaa    360
ctgtggaagg aacatccaag atctctggtc catgaagatt ggggtgtgga agggttacca    420
gttgggaag ctcgtctgtc tttttccttc caatcagggg ctcgctcttc tgattattct    480
tcagggcaat gacataaatt gtatattcgg tcccggttcc aggccagtaa tagtagcctc    540
tgtqacacca gggcgggggcc gagggaccct tctnttggaa gaqaccaqct tctcatactt    600
gatgatgagn ccggtaatcc tggcacgtgg nggttgcatg atnccaccaa ggaaatnggn    660
gggggnggac ctgcccggcg gccgttcnaa agcccaattc cacacacttg gnggccgtac    720
tatggatccc actcngtcca acttggngga atatggcata actttt                   766
```

<210> 226
<211> 364
<212> DNA
<213> Homo sapien

<400> 226

```
tcgagcggcc gcccgggcag gtccttgacc ttttcagcaa gtgggaaggt gtaatccgtc     60
tccacagaca aggccaggac tcgtttgtac ccgttgatga tagaatgggg tactgatgca    120
acagttgggt agccaatctg cagacagaca ctggcaacat tgcggacacc ctccaggaag    180
cgagaatgca gagtttcctc tctgatatca agcactcag ggttgtagat gctgccattg     240
tcgaacacct gctggatgac cagcccaaag gagaaggggg agatgttgag catgttcagc    300
agcgtggctt cgctggctcc cactttgtct ccagtcttga tcagacctcg gccgcgacca    360
cgct                                                                  364
```

<210> 227
<211> 275
<212> DNA
<213> Homo sapien

<400> 227

```
agcgtggtcg cggccgaggt ctgtcctaca gtcctcagga ctctactccc tcagcagcgt     60
ggtgaccgtg ccctccagca acttcggcac ccagacctac acctgcaacg tagatcacaa    120
gcccagcaac accaaggtgg acaagagagt tgagcccaaa tcttgtgaca aaactcacac    180
```

```
atgcccaccg tgcccagcac ctgaactcct gggggacccg tcagtcttcc tcttccccg          240
catccccctt ccaaacctgc ccgggcggcc gctcg                                    275
```

        <210> 228
        <211> 275
        <212> DNA
        <213> Homo sapien

        <400> 228
```
cgagcggccg cccgggcagg tttggaaggg ggatgcgggg gaagaggaag actgacggtc          60
cccccaggag ttcaggtgct gggcacggtg ggcatgtgtg agttttgtca caagatttgg          120
gctcaactct cttgtccacc ttggtgttgc tgggcttgtg atctacgttg caggtgtagg          180
tctgggtgcc gaagttgctg gagggcacgg tcaccacgct gctgagggag tagagtcctg          240
aggactgtag gacagacctc ggccgcgacc acgct                                    275
```

        <210> 229
        <211> 40
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(40)
        <223> n = A,T,C or G

        <400> 229
```
nggnnggtcc ggncngncag gaccactcnt cttcgaaata                               40
```

        <210> 230
        <211> 208
        <212> DNA
        <213> Homo sapien

        <400> 230
```
agcgtggtcg cggccgaggt cctcacttgc ctcctgcaaa gcaccgatag ctgcgctctg          60
gaagcgcaga tctgtttttaa agtcctgagc aatttctcgc accagacgct ggaagggaag          120
tttgcgaatc agaagttcag tggacttctg ataacgtcta atttcacgga gcgccacagt          180
accaggacct gcccgggcgg ccgctcga                                            208
```

        <210> 231
        <211> 208
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(208)
        <223> n = A,T,C or G

        <400> 231
```
tcgagcggcc gcccgggcag gtcctggtac tgnggcgctc cgtgaaatta gacgttatca          60
gaagtccact gaacttctga ttcgcaaact tcccttccag cgtctggtgc gagaaattgc          120
tcaggacttt aaaacagatc tgcgcttcca gagcgcagct atcggtgctt tgcaggaggc          180
aagtgaggac ctcggccgcg accacgct                                            208
```

```
        <210> 232
        <211> 332
        <212> DNA
        <213> Homo sapien

        <400> 232
tcgagcggcc gcccgggcag gtccacatcg gcaggtcgg agccctggcc gccatactcg      60
aactggaatc catcggtcat gctctcgccg aaccagacat gcctcttgtc cttqgggttc     120
ttgctgatgt accagttctt ctgggccaca ctgggctgag tgggtacac gcaggtctca      180
ccagtctcca tgttgcagaa gactttgatg gcatccaggt tgcagccttg gttggggtca     240
atccagtact ctccactctt ccagtcagag tggcacatct tgaggtcacg gcaggtgcgg     300
gcggggttct tgacctcggc cacgaccacg ct                                   332

        <210> 233
        <211> 415
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc feature
        <222> (1)...(415)
        <223> n = A,T,C or G

        <400> 233
gtgggnttga acccntttna nctccgcttg gtaccgagct cggatccact agtaacggcc      60
gccagtgtgc tggaattcgg cttagcgtgg tcgcggccga ggtcaagaac cccgcccgca     120
cctgccgtga cctcaagatg tgccactctg actggaagag tggagagtac tggattgacc     180
ccaaccaagg ctgcaacctg gatgccatca aagtcttctg caacatggag actggtgaga     240
cctgcgtgta ccccactcag cccagtgtgg cccagaagaa ctggtacatc agcaagaacc     300
ccaaggacaa gaggcatgtc tggttcggcg agagcatgac cgatggattc cagttcgagt     360
atggcggcca gggctccgac cctgccgatg tggacctgcc cgggcggccg ctcga          415

        <210> 234
        <211> 776
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(776)
        <223> n = A,T,C or G

        <400> 234
agcgtggtcg cggccgaggt ctgggatgct cctgctgtca cagtgagata ttacaggatc      60
acttacggag aaacaggagg aaatagccct gtccaggagt tcactgtgcc tgggagcaag     120
tctacagcta ccatcagcgg ccttaaacct ggagttgatt ataccatcac tgtgtatgct     180
gtcactggcc gtggagacag ccccgcaagc agcaagccaa tttccattaa ttaccgaaca     240
gaaattgaca aaccatccca gatgcaagtg accgatgttc aggacaacag cattagtgtc     300
aagtggctgc cttcaagttc ccctgttact ggttacagag taaccaccac tcccaaaaat     360
ggaccaggac caacaaaaac taaaactgca ggtccagatc aaacagaaat gactattgaa     420
ggcttgcagc ccacagtgga gtatgtggtt aagtgtctat gctcagaatc caagcggaga     480
gaagtcagcc tctggttcag actgnaagta accaacattg atcgcctaaa ggactggcat     540
tcactgatgn ggatgccgat tccatcaaaa ttgnttggga aaacccacag gggcaagttt     600
ncangtcnag gnggacctac tcgagccctg aggatggaat ccttgactnt tccttnncct     660
gatggggaaa aaaaaccttn aaaacttgaa ggacctgccc gggcggccgt ncaaaaccca     720
```

```
attccacccc cttgggggcg ttctatgggn cccactcgga ccaaacttgg ggtaan            776
```

```
        <210> 235
        <211> 805
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(805)
        <223> n = A,T,C or G

        <400> 235
tcgagcggcc gcccgggcag gtccttgcag ctctgcagtg tcttcttcac catcaggtgc            60
agggaatagc tcatggattc catcctcagg gctcgagtag gtcaccctgt acctggaaac           120
ttgcccctgt gggctttccc aagcaatttt gatggaatcg gcatccacat cagtgaatgc           180
cagtccttta gggcgatcaa tgttggttac tgcagtctga accagaggct gactctctcc           240
gcttggattc tgagcataga cactaaccac atactccact gtgggctgca agccttcaat           300
agtcatttct gtttgatctg gacctgcagt tttagttttt gttggtcctg gtccattttt           360
gggagtggtg gttactctgt aaccagtaac aggggaactt gaaggcagcc acttgacact           420
aatgctgttg tcctgaacat cggtcacttg catctgggat ggtttgtcaa tttctgttcg           480
gtaattaatg gaaattggct tgctgcttgc gggcttgtc tccacggcca gtgacagcat            540
acacagtgat ggtataatca actccaggtt taagccgctg atggtagctg aaacttgct            600
ccaggcacaa gtgaactcct gacagggcta ttcctnctg ttctccgtaa gtgatcctgt            660
aatatctcac tgggacagca ggangcattc caaaacttcg ggcgngaccc cctaagccga           720
attntgcaat atncatcaca ctggcgggcg ctcgancatt cattaaaagg cccaatcncc           780
cctataggga gtntantaca attng                                                 805
```

```
        <210> 236
        <211> 262
        <212> DNA
        <213> Homo sapien

        <400> 236
tcgagcggcc gcccgggcag gtcacttttg gttttttggtc atgttcggtt ggtcaaagat          60
aaaaactaag tttgagagat gaatgcaaag gaaaaaaata ttttccaaag tccatgtgaa          120
attgtctccc atttttttgg cttttgaggg ggttcagttt gggttgcttg tctgtttccg          180
ggttggggggg aaagttggtt gggtgggagg gagccaggtt gggatggagg gagtttacag         240
gaagcagaca gggccaacgt cg                                                    262
```

```
        <210> 237
        <211> 372
        <212> DNA
        <213> Homo sapien

        <400> 237
agcgtggtcg cggccgaggt cctcaccaga ggtgccacct acaacatcat agtggaggca           60
ctgaaagacc agcagaggca taaggttcgg gaagaggttg ttaccgtggg caactctgtc          120
aacgaaggct tgaaccaacc tacggatgac tcgtgctttg acccctacac agtttccat           180
tatgccgttg gagatgagtg ggaacgaatg tctgaatcag gctttaaact gttgtgccag          240
tgcttaggct ttggaagtgg tcattcaga tgtgattcat ctagatggtg ccatgacaat           300
ggtgtgaact acaagattgg agagaagtgg gaccgtcagg gagaaaatgg acctgcccgg          360
gcggccgctc ga                                                              372
```

```
        <210> 238
```

```
        <211> 372
        <212> DNA
        <213> Homo sapien

        <400> 238
tcgagcggcc gcccgggcag gtccattttc tccctgacgg tcccacttct ctccaatctt      60
gtagttcaca ccattgtcat ggcaccatct agatgaatca catctgaaat gaccacttcc     120
aaagcctaag cactggcaca acagtttaaa gcctgattca gacattcgtt cccactcatc     180
tccaacggca taatgggaaa ctgtgtaggg gtcaaagcac gagtcatccg taggttggtt     240
caagccttcg ttgacagagt tgcccacggt aacaacctct tcccgaacct tatgcctctg     300
ctggtctttc agtgcctcca ctatgatgtt gtaggtggca cctctggtga ggacctcggc     360
cgcgaccacg ct                                                         372
```

```
        <210> 239
        <211> 720
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(720)
        <223> n = A,T,C or G

        <400> 239
tcgagcggcc gcccgggcag gtccaccata agtcctgata caaccacgga tgagctgtca      60
ggagcaaggt tgatttcttt cattggtccg gtcttctcct tgggggtcac ccgcactcga     120
tatccagtga gctgaacatt gggtggtgtc cactggcgc tcaggcttgt gggtgtgaca     180
tgagtgaact tcaggtcagt tggtgcagga atagtggtta ctgcagtctg aaccagaggc     240
tgactctctc cgcttggatt ctgagcatag acactaacca catactccac tgtgggctgc     300
aagccttcaa tagtcatttc tgtttgatct ggacctgcag ttttagtttt tgttggtcct     360
ggtccatttt tgggagtggt ggttactctg taaccagtaa caggggaact tgaaggcagc     420
cactgacac taatgctgtt gtcctgaaca tcggtcactt gcatctggga tggtttgnca     480
atttctgttc ggtaattaat ggaaattggc ttgctgcttg cggggctgtc tccacggcca     540
gtgacagcat acacagngat ggnatnatca actccaagtt taaggccctg atggtaactt     600
taaacttgct cccagccagn gaacttccgg acagggtatt tcttctggtt ttccgaaagn     660
gancctggaa tnntctcctt ggancagagc gancntccaa aacttgggcc ggaacccctt     720
```

```
        <210> 240
        <211> 691
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(691)
        <223> n = A,T,C or G

        <400> 240
agcgtggtcg cggccgaggt cctgtcagag tggcactggt agaagttcca ggaaccctga      60
actgtaaggg ttcttcatca gtgccaacag gatgacatga aatgatgtac tcagaagtgt     120
cctggaatgg ggcccatgag atggttgtct gagagagagc ttcttgtcct acattcggcg     180
ggtatggtct tggcctatgc cttatggggg tggccgttgt gggcggtgtg gtccgcctaa     240
aaccatgttc ctcaaagatc atttgttgcc caacactggg ttgctgacca gaagtgccag     300
gaagctgaat accatttcca gtgtcatacc cagggtgggt gacgaaaggg gtcttttgaa     360
ctgtggaagg aacatccaag atctctggtc catgaagatt ggggtgtgga agggttacca     420
```

```
gttggggaaa ctcgtctgtc tttttccttc caatcagggg ctcgctcttc tgattattct       480
tcagggcaat gacataaatt gtatattcgg ttcccggttc caggccagta atagtagcct       540
cttgtgacac caggcggggc ccanggacca cttctctggg angagaccca gcttctcata       600
cttgatgatg taacccggta atcctgcacg tggcggctgn catgatacca ncaaggaatt       660
gggtgnggng gacctgcccg gcggccctcn a                                      691
```

        <210> 241
        <211> 808
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(808)
        <223> n = A,T,C or G

        <400> 241
```
agcgtggtcg cggccgaggt ctgggatgct cctgctgtca cagtgagata ttacaggatc        60
acttacggag aaacaggagg aaatagccct gtccaggagt tcactgtgcc tgggagcaag       120
tctacagcta ccatcagcgg ccttaaacct ggagttgatt ataccatcac tgtgtatgct       180
gtcactggcc gtggagacag ccccgcaagc agcaagccaa tttccattnn ttaccgaaca       240
gaaattgaca aaccatccca gatgcaagtg accgatgttc aggacaacag cattagtgtc       300
aagtgctgc cttcaagttc ccctgttact ggttacagag taaccaccac tcccaaaaat       360
ggaccaggac caacaaaaac taaaactgca ggtccagatc aaacagaaat gactattgaa       420
ggcttgcagc ccacagtgga gtatgtggtt agtgtctatg ctcagaatcc aagcggagag       480
agtcagcctc tggttcagac tgcagtaacc actattcctg caccaactga cctgaagttc       540
actcaggtca cacccacaag cctgagccgc cagtggacac cacccaatgt tcactcactg       600
gatatcgagt gcgggtgacc cccaaggaga agacccggac ccatgaaaga aatcaacctt       660
gctcctgaca gctcatccgn gggtgtatca ggacttatgg gggactgccc cggcnggccg       720
ntcgaaancg aattntgaaa tttccttcnc actgggnggc gnttcgagct tncttntana       780
nggcccaatt cncctntagn gggtcgtn                                          808
```

        <210> 242
        <211> 26
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(26)
        <223> n = A,T,C or G

        <400> 242
```
agcgtggtcg cggccgaggt cnagga                                            26
```

        <210> 243
        <211> 697
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(697)
        <223> n = A,T,C or G

```
<400> 243
tcgagcggcc gcccgggcag gtccaccaca cccaattcct tgctggtatc atggcagccg      60
ccacgtgcca ggattaccgg ctacatcatc aagtatgaga agcctgggtc tcctcccaga     120
gaagtggtcc ctcggccccg ccctggtgtc acagaggcta ctattactgg cctggaaccg     180
ggaaccgaat atacaattta tgtcattgcc ctgaagaata atcagaagag cgagcccctg     240
attggaagga aaaagacaga cgagcttccc caactggtaa cccttccaca ccccaatctt     300
catggaccag agatcttgga tgttccttcc acagttcaaa agaccccttt cgtcacccac     360
cctgggtatg acactggaaa tggtattcag cttcctggca cttctggtca gcaacccagt     420
gttgggcaac aaatgatctt tgaggaacat ggtttttaggc ggaccacacc gcccacaacg     480
ggcacccccca taaggnatag gccaagacca taccccgccg aatgtaggac aagaagctct     540
ntctcaacaa ccatctcatg ggccccattc caggacactt ctgagtacat catttcatgt     600
catcctggtg ggcacttgat gaanaaccct tacagttcag ggttcctgga acttctacca     660
gngccacttc tgacagganc ttgggcgnga ccaccct                              697


        <210> 244
        <211> 373
        <212> DNA
        <213> Homo sapien


        <400> 244
agcgtggtcg cggccgaggt ccattttctc cctgacggtc ccacttctct ccaatcttgt      60
agttcacacc attgtcatgg caccatctag atgaatcaca tctgaaatga ccacttccaa     120
agcctaagca ctggcacaac agtttaaagc ctgattcaga cattcgttcc cactcatctc     180
caacggcata atgggaaact gtgtaggggt caaagcacga gtcatccgta ggttggttca     240
agccttcgtt gacagagttg cccacggtaa caacctcttc ccgaacctta tgcctctgct     300
ggtctttcag tgcctccact atgatgttgt aggtggcacc tctggtgagg acctgcccgg     360
gcggcccgct cga                                                        373


        <210> 245
        <211> 307
        <212> DNA
        <213> Homo sapien


        <400> 245
agcgtggtcg cggccgaggt gtgccccaga ccaggaattc ggcttcgacg ttggccctgt      60
ctgcttcctg taaactccct ccatcccaac ctggctccct cccacccaac caactttccc     120
cccaacccgg aaacagacaa gcaacccaaa ctgaaccccc tcaaaagcca aaaaaatggg     180
agacaatttc acatggactt tggaaaatat tttttccttt tgcattcatc tctcaaactt     240
agtttttatc tttgaccaac cgaacatgac caaaaaccaa aagtgacctg cccgggcggc     300
cgctcga                                                              307


        <210> 246
        <211> 372
        <212> DNA
        <213> Homo sapien


        <400> 246
tcgagcggcc gcccgggcag gtcctcacca gaggtgccac ctacaacatc atagtggagg      60
cactgaaaga ccagcagagg cataaggttc gggaagaggt tgttaccgtg ggcaactctg     120
tcaacgaagg cttgaaccaa cctacggatg actcgtgctt tgacccctac acagtttccc     180
attatgccgt tggagatgag tgggaacgaa tgtctgaatc aggctttaaa ctgttgtgcc     240
agtgcttagg ctttggaagt ggtcatttca gatgtgattc atctagatgg tgccatgaca     300
atggtgtgaa ctacaagatt gggagagaagt gggaccgtca gggagaaaat ggacctcggc     360
cgcgaccacg ct                                                        372
```

```
        <210> 247
        <211> 348
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(348)
        <223> n = A,T,C or G

        <400> 247
tcgagcggcc gcccgggcag gtaccggggt ggtcagcgag gagccattca cactgaactt          60
caccatcaac aacctgcggt atgaggagaa catgcagcac cctggctcca ggaagttcaa         120
caccacggag agggtccttc agggcctgct caggtccctg ttcaagagca ccagtgttgg         180
ccctctgtac tctggctgca gactgacttt gctcagacct gagaaacatg gggcagccac         240
tggagtggac gccatctgca ccctccgcct tgatcccact ggtnctggac tggacanana         300
gcggctatac ttgggagctg anccnaacct ttggcggnga cnccnctt                     348

        <210> 248
        <211> 304
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(304)
        <223> n = A,T,C or G

        <400> 248
gaggactggc tcagctccca gtatagccgc tctctgtcca gtccaggacc agtgggatca          60
aggcggaggg tgcagatggc gtccactcca gtggctgccc catgtttctc aagtctgagc         120
aaagncagtc tgcagccaga gtacagaggg ccaacactgg tgctcttgaa caggcacctg         180
agcaggccct gaaggaccct ctccgtggtc ttgaacttcc tggagccagg gtgctgcatg         240
ttctcctcat accgcaggtt gttgatggtg aagttcagtg tgaatggctc ctcgctgacc         300
accc                                                                     304

        <210> 249
        <211> 400
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(400)
        <223> n = A,T,C or G

        <400> 249
agcgtggtcg cggccgaggt ccaccacacc caattccttg ctggtatcat ggcagccgcc          60
acgtgccagg attaccggct acatcatcaa gtatgagaag cctgggtctc ctcccagaga         120
agtggtccct cggccccgcc ctggtgtcac agaggctact attactggcc tggaaccggg         180
aaccgaatat acaatttatg tcattgccct gaacaataat cagaagagcg agccctqat          240
tggaaggaaa aagacagacg agcttcccca actggtaacc cttccacacc ccaatcttca         300
tggaccanan ancttggatn gtcctttcac nggttnaaaa aacccttttc gcccccccac         360
cttcgggatt aaccttggga aangqggatt tnaccnttcc                              400
```

```
<210> 250
<211> 400
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(400)
<223> n = A,T,C or G

<400> 250
tcgagcggcc gcccgggcag gtcctgtcag agtggcactg gtagaagttc caggaaccct    60
gaactgtaag ggttcttcat cagtgccaac aggatgacat gaaatgatgt actcagaagt   120
gtcctggaat ggggcccatg agatggttgt ctgagagaga gcttcttgtc ctacattcgg   180
cgggtatggt cttggcctat gccttatggg ggtggccgtt gtgggcggtg tggtccgcct   240
aaaaccatgt tcctcaaaga tcatttgttg cccaacactg ggttgctgac cagaagtgcc   300
aggaagctga ataccatttc cagtgtcata cccaggggng gtgaccaaag ggggtcnttt   360
ngacctggng aaaggaacca tccaaaanct ctgncccatg                         400
```

```
<210> 251
<211> 514
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(514)
<223> n = A,T,C or G

<400> 251
agcgtggncg cggccgaggt ctgaggatgt aaactcttcc caggggaagg ctgaagtgct    60
gaccatggtg ctactgggtc cttctgagtc agatatgtga ctgatgngaa ctgaagtagg   120
tactgtagat ggtgaagtct gggtgtccct aaatgctgca tctccagagc cttccatcat   180
taccgtttct tcttttgcta tgggatgaga cactgttgag tattctctaa agtcaccact   240
gaaatcttcc tccaaaggaa aacctgtgga aaagcccctt atttctgccc cataatttgg   300
ttctcctaat cnctctgaaa tcactatttc cctggaangt ttgggaaaaa nngggcnacc   360
tgncantgga aantggatan aaagatccca ccattttacc caacnagcag aaagtgggaa   420
nggtaccgaa aagctccaag taanaaaaag gagggaagta aaggtcaagt gggcaccagt   480
ttcaaacaaa actttcccca aactatanaa ccca                               514
```

```
<210> 252
<211> 501
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(501)
<223> n = A,T,C or G

<400> 252
aagcggccgc ccgggcaggn ncagnagtgc cttcgggact gggntcaccc ccaggtctgc    60
ggcagttgtc acagcgccag ccccgctggc ctccaaagca tgtgcaggag caaatggcac   120
cgagatattc cttctgccac tgttctccta cgtggtatgt cttcccatca tcgtaacacg   180
ttgcctcatg agggtcacac ttgaattctc ctttttccgtt cccaagacat gtgcagctca   240
```

```
tttggctggc tctatagttt ggggaaagtt tgttgaaact gtgccactga cctttacttc      300
ctccttctct actggagctt tccgtacctt ccacttctgc tgntggnaaa aagggnggaa      360
cntcttatca atttcattgg acagtanccc nctttctncc caaaacatnc aagggaaaat      420
attgattncn agagcggatt aaggaacaac ccnaattatg ggggccagaa ataaaggggg      480
ctttccaca ggtnttttcc t                                                  501
```

        <210> 253
        <211> 226
        <212> DNA
        <213> Homo sapien

        <400> 253
```
tcgagcggcc gcccgggcag gtctgcaggc tattgtaagt gttctgagca catatgagat       60
aacctgggcc aagctatgat gttcgatacg ttagctgtat taaatgcact tttgactgcc      120
atctcagtgg atgacagcct tctcactgac agcagagatc ttcctcactg tgccagtggg      180
caggagaaag agcatgctgc gactggacct cggccgcgac cacgct                     226
```

        <210> 254
        <211> 226
        <212> DNA
        <213> Homo sapien

        <400> 254
```
agcgtggtcg cggccgaggt ccagtcgcag catgctcttt ctcctgccca ctggcacagt       60
gaggaagatc tctgctgtca gtgagaaggc tgtcatccac tgagatggca gtcaaaagtg      120
catttaatac acctaacgta tcgaacatca tagcttggcc caggttatct catatgtgct      180
cagaacactt acaatagcct gcagacctgc ccggcggcc gctcga                      226
```

        <210> 255
        <211> 427
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(427)
        <223> n = A,T,C or G

        <400> 255
```
cgagcggccg cccgggcagg tccagactcc aatccagaga accaccaagc cagatgtcag       60
aagctacacc atcacaggtt tacaaccagg cactgactac aagatctacc tgtacacctt      120
gaatgacaat gctcggagct cccctgtggt catcgacgcc tccactgcca ttgatgcacc      180
atccaacctg cgtttcctgg ccaccacacc caattccttg ctggtatcat ggcagccgcc      240
acgtgccagg attaccggct acatcatcaa gtatgagaag cctgggtctc tcccagaga      300
agtggtccct cggccccgcc ctggtgncac agaagctact attactggcc tggaaccggg      360
aaccgaatat acaatttatg tcattgccct gaagaataat canaagagcg agcccctgat      420
tggaagg                                                                427
```

        <210> 256
        <211> 535
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc feature

```
        <222> (1)...(535)
        <223> n = A,T,C or G

        <400> 256
agcgtggtcg cggccgaggt cctgtcagag tggcactggt agaagttcca ggaaccctga    60
actgtaaggg ttcttcatca gtgccaacag gatgacatga aatgatgtac tcagaagtgt   120
cctggaatgg ggcccatgag atggttgtct gagagagagc ttcttgtcct gtctttttcc   180
ttccaatcag gggctcgctc ttctgattat tcttcagggc aatgacataa attgtatatt   240
cggttcccgg ttccaggcca gtaatagtag cctctgtgac accagggcgg ggccgaggga   300
ccacttctct gggaggagac ccaggcttct catacttgat gatgtanccg gtaatcctgg   360
caccgtggcg gctgccatga taccagcaag gaattgggtg tggtggccaa gaaacgcagg   420
ttggatggtg catcaatggc agtggaggcg tcgatnacca cagggagct ccgancattg    480
tcattcaagg tggacaggta gaatcttgta atcaggtgcc tggtttgtaa acctg         535


        <210> 257
        <211> 544
        <212> DNA
        <213> Homo sapien


        <220>
        <221> misc_feature
        <222> (1)...(544)
        <223> n = A,T,C or G

        <400> 257
tcgagcggcc gcccgggcag gtttcgtgac cgtgacctcg aggtggacac caccctcaag    60
agcctgagcc agcagatcga gaacatccgg agcccagagg gcagccgcaa gaaccccgcc   120
cgcacctgcc gtgacctcaa gatgtgccac tctgactgga agagtggaga gtactggatt   180
gaccccaacc aaggctgcaa cctggatgcc atcaaagtct tctgcaacat ggagactggt   240
gagacctgcg tgtaccccac tcagcccagt gtggcccaga agaactggta catcagcaag   300
aaccccaagg acaagaagca tgtctggttc ggcgaaagca tgaccgatgg attccagttc   360
gagtatggcg gccagggctc cgaccctgcc gatgtggacc tcggccgcga ccacgctaag   420
cccgaattcc agcacactgg cggccgttac tagtgggatc cgagcttcgg taccaagctt   480
ggcgtaatca tgggncatag ctgtttcctg ngtgaaaatg gtattccgct tcacaatttc   540
ccac                                                                544


        <210> 258
        <211> 418
        <212> DNA
        <213> Homo sapien


        <400> 258
agcgtggtcg cggccgaggt ccacatcggc agggtcggag ccctggccgc catactcgaa    60
ctggaatcca tcggtcatgc tctcgccgaa ccagacatgc ctcttgtcct tggggttctt   120
gctgatgtac cagttcttct gggccacact gggctgagtg gggtacacgc aggtctcacc   180
agtctccatg ttgcagaaga cttgatggc atccaggttg cagccttggt tggggtcaat    240
ccagtactct ccactcttcc agtcagagtg gcacatcttg aggtcacggc aggtgcgggc   300
gggttcttg cggctgccct ctgggctccg gatgttctcg atctgctggc tcaagctctt    360
gaagggtggt gtccacctcg aggtcacggt cacgaaacct gcccgggcgg ccgctcga     418


        <210> 259
        <211> 377
        <212> DNA
        <213> Homo sapien
```

```
        <220>
        <221> misc_feature
        <222> (1)...(377)
        <223> n = A,T,C or G

        <400> 259
agcgtggtcg cggccgaggt caagaaccrc gcccgcacct gccgtgacct caagatgtgc      60
cactctgact ggaagagtgg agagtactgg attgacccca accaaggctg caacctggat     120
gccatcaaag tcttctgcaa catggagact ggtgagacct gcgtgtaccc cactcagccc     180
agtgtggccc agaagaactg gtacatcagc aagaacccca aggacaagag gcatgtctgg     240
ttcggcgaga gcatgaccga tggattccag ttcgagtatg cggccaggg  ctccgaccct     300
gccgatgtgg acctgcccgn gccggnccgc tcgaaaagcc cnaatttcca gncacacttg     360
gccggccgtt actactg                                                    377


        <210> 260
        <211> 332
        <212> DNA
        <213> Homo sapien

        <400> 260
tcgagcggcc gcccgggcag gtccacatcg gcagggtcgg agccctggcc gccatactcg      60
aactggaatc catcggtcat gctctcgccg aaccagacat gcctcttgtc cttggggttc     120
ttgctgatgt accagttctt ctgggccaca ctgggctgag tggggtacac gcaggtctca     180
ccagtctcca tgttgcagaa gactttgatg gcatccaggt tgcagccttg gttgggggtca     240
atccagtact ctccactctt ccagtcagag tggcacatct tgaggtcacg gcaggtgcgg     300
gcggggttct tgacctcggc cgcgaccacg ct                                   332


        <210> 261
        <211> 94
        <212> DNA
        <213> Homo sapien

        <400> 261
cgagcggccg cccgggcagg tcccccccct tttttttttt ttttttttt tttttttttt      60
tttttttttt tttttttttt tttttttttt tttt                                 94


        <210> 262
        <211> 650
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(650)
        <223> n = A,T,C or G

        <400> 262
agcgtggtcg cggccgaggt ctggcattcc ttcgacttct ctccagccga gcttcccaga      60
acatcacata tcactgcaaa aatagcattg catacatgga tcaggccagt ggaaatgtaa     120
agaaggccct gaagctgatg gggtcaaatg aaggtgaatt caaggctgaa ggaaatagca     180
aattcaccta cacagttctg gaggatggtt gcacgaaaca cactgggaa tggagcaaaa      240
cagtctttga atatcgaaca cgcaaggctg tgagactacc tattgtagat attgcaccct     300
atgacattgg tggtcctgat caagaatttg gtgtggacgt tggccctgtt tgcttttat      360
aaaccaaact ctatctgaaa tcccaacaaa aaaaattaa ctccatatgt gntcctcttg      420
ttctaatctt ggcaaccagt gcaagtgacc gacaaaattc cagttattta tttccaaaat     480
```

```
gtttggaaac agtataattt gacaaagaaa aaaggatact tctctttttt tggctggtcc      540
accaaataca attcaaaagg cttttggtt ttatttttt anccaattcc aatttcaaaa       600
tgtctcaatg gngcttataa taaaataaac tttcaccctt nttttntgat                 650
```

```
<210> 263
<211> 573
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(573)
<223> n = A,T,C or G

<400> 263
```

```
agcgtggtcg cggccgaggt ctgggatgct cctgctgtca cagtgagata ttacaggatc       60
acttacggag aaacaggagg aaatagccct gtccaggagt tcactgtgcc tgggagcaag      120
tctacagcta ccatcagcgg ccttaaacct ggagttgatt ataccatcac tgtgtatgct      180
gtcactggcc gtggagacag ccccgcaagc agcaagccaa tttccattaa ttaccgaaca      240
gaaattgaca aaccatccca gatgcaagtg accgatgttc aggacaacag cattagtgtc      300
aagtggctgc cttcaagttc ccctgttact ggttacagaa gtaaccacca ctcccaaaaa      360
tggaccagga ccaacaaaaa ctaaaactgc aggtccagat caaacagaaa atggactatt      420
gaaggcttgc agcccacagt ggaagtatgt ggntaggngt ctatgctcag aatcccaagc      480
cggagaaagt cagccttctg gtttagactg cagtaaccaa cattgatcgc cctaaaggac      540
tggncattca cttggatggt ggatgtccaa ttc                                   573
```

```
<210> 264
<211> 550
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(550)
<223> n = A,T,C or G

<400> 264
```

```
tcgagcggcc gcccgggcag gtccttgcag ctctgcagng tcttcttcac catcaggtgc       60
agggaatagc tcatggattc catcctcagg gctcgagtag gtcaccctgt acctggaaac      120
ttgcccctgt gggctttccc aagcaatttt gatggaatcg acatccacat cagngaatgc      180
cagtcctttа gggcgatcaa tgttggttac tgcagtctga accagaggct gactctctcc      240
gcttggattc tgagcataga cactaaccac atactccact gtgggctgca agccttcaat      300
agtcatttct gtttgatctg gacctgcagt tttaagtttt tggtggtcct gncccatttt      360
tgggaagtgg ggggttactc tgtaaccagt aacaggggaa cttgaaggca gccacttgac      420
actaatgctg ttgtcctgaa catcggtcac ttgcatctgg ggatggtttt gacaatttct      480
ggttcggcaa attaatggaa attggcttgc tgcttggcgg ggctgnctcc acgggccagt      540
gacagcatac                                                            550
```

```
<210> 265
<211> 596
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
```

<220>
<221> misc_feature
<222> (1)...(596)
<223> n = A,T,C or G

<400> 265

```
tcgagcggcc gcccgggcag gtccttgcag ctctgcagtg tcttcttcac catcaggtgc     60
aggaaatagc tcatggattc catcctcagg gctcgagtag gtcaccctgt acctggaaac    120
ttgcccctgt gggctttccc aagcaatttt gatggaatcg acatccacat cagtgaatgc    180
cagtccttta gggcgatcaa tgttggttac tgcagtctga accagaggct gactctctcc    240
gcttggattc tgagcataga cactaaccac atactccact gtgcgctgca agccttcaat    300
agtcatttct gtttgatctg gacctgcagt tttaagtttt tgttggncct gnnccatttt    360
tggggaaggg gtggttactc ttgtaaccag taacagggga acttgaagca gccacttgac    420
actaatgctg gtggcctgaa catcggtcac ttgcatctgg gatggtttgg tcaatttctg    480
ttcggtaatt aatcggaaat tggcttactg gcttgcgggg gctgtctcca cggncagtga    540
caagcataca caggngatgg gtataatcaa ctccaggttt aaggccnctg atggta        596
```

<210> 266
<211> 506
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(506)
<223> n = A,T,C or G

<400> 266

```
agcgtggtcg cggccgaggt ctgggatgct cctgctgtca cagtgagata ttacaggatc     60
acttacggag aaacaggagg aaatagccct gtccaggagt tcactgtgcc tgggagcaag    120
tctacagcta ccatcagcgg ccttaaacct ggagttgatt ataccatcac tgtgtatgct    180
gtcactggcc gtggagacag ccccgcaagc agtaagccaa tttccattaa ttaccgaaca    240
gaaattgaca aaccatccca gatgcaagtg accgatgttc aggacaacag cattagtgtc    300
aagtggctgc cttcaagttc ccctgttact ggttacagag taaccaccac tcccaaaaat    360
gggaccagga ccaacaaaaa actaaaactg canggtccag atcaaacaga aatgactatt    420
gaaggcttgc agcccacagt ggagtatgtg ggttagtgtc tatgctcaga atnccaagcg    480
gagagagtca gcctctggtt cagact                                          506
```

<210> 267
<211> 548
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(548)
<223> n = A,T,C or G

<400> 267

```
tcgagcggcc gcccgggcag gtcagcgctc tcaggacgtc accaccatgg cctgggctct     60
gctcctcctc accctcctca ctcagggcac agggtcctgg gccagtctg ccctgactca    120
gcctccctcc gcgtccgggt ctcctggaca gtcagtcacc atctcctgca ctggaaccag    180
cagtgacgtt ggtgcttatg aatttgtctc ctggtaccaa caacacccag gcaaggcccc    240
caaactcatg atttctgagg tcactaagcg gccctcaggg gtccctgatc gcttctctgg    300
ctccaagtct ggcaacacgg cctccctgac cgtctctggg ctccangctg aggatgangc    360
tgattattac tggaagctca tatgcaggca acaacaattg ggtgttcggc ggaagggacc    420
aagctgaccg tnctaaggtc aagcccaagg cttgcccccc tcggtcactc tgttcccacc    480
```

```
ctcctctgaa gaagctttca agccaacaan gncacactgg gtgtgtctca taagtggact   540
ttctaccc                                                            548
```

    <210> 268
    <211> 584
    <212> DNA
    <213> Homo sapien

    <220>
    <221> misc_feature
    <222> (1)...(584)
    <223> n = A,T,C or G

    <400> 268

```
agcgtggtcg cggccgaggt ctgtagcttc tgtgggactt ccactgctca ggcgtcaggc    60
tcaggtagct gctggccgcg tacttgttgt tgctttgntt ggagggtgtg gtggtctcca   120
ctcccgcctt gacggggctg ctatctgcct tccaggccac tgtcacggct cccgggtaga   180
agtcacttat gagacacacc agtgtggcct tgttggcttg aagctcctca gaggagggtg   240
ggaacagagt gaccgagggg gcagccttgg gctgacctag gacggtcagc ttggtccctc   300
cgccgaacac ccaattgttg ttgcctgcat atgagctgca gtaataatca gcctcatcct   360
cagcctggag cccagagacn gtcaagggag gcccgtgttt gccaagactt ggaagccaga   420
naagcgatca gggacccctg agggccgctt tacngacctc aaaaaatcat gaatttgggg   480
ggcctttgcc tgggngttgg ttggtnaccn gnaaaacaaa atttcataaa gcaccnacgt   540
cactgctggt ttccagtgca ngaanatggt gaactgaant gtcc                    584
```

    <210> 269
    <211> 368
    <212> DNA
    <213> Homo sapien

    <220>
    <221> misc_feature
    <222> (1)...(368)
    <223> n = A,T,C or G

    <400> 269

```
agcgtggtcg cggccgaggt ccagcatcag gagccccgcc ttgccggctc tggtcatcgc    60
ctttcttttt gtggcctgaa acgatgtcat caattcgcag tagcagaact gccgtctcca   120
ctgctgtctt ataagtctgc agcttcacag ccaatggctc ccatatgccc agttccttca   180
tgtccaccaa agtacccgtc tcaccattta cacccaggt ctcacagttc tcctgggtgt     240
gcttggcccg aagggaggta agtanacgga tggtgctggt cccacagttc tggatcaggc    300
tacgaggaat gacctctagg gcctgggcna caagccctgt atggacctgc ccgggcgggc    360
ccgctcga                                                            368
```

    <210> 270
    <211> 368
    <212> DNA
    <213> Homo sapien

    <220>
    <221> misc_feature
    <222> (1)...(368)
    <223> n = A,T,C or G

    <400> 270

```
tcgagcggcc gcccgggcag gtccatacag ggctgttgcc caggccctag aggncattcc      60
ttgtaccctg atccagaact gtgggaccag caccatccgt ctacttacct cccttcgggc     120
caagcacacc caggagaact gtgagacctg gggtgtaaat ggngagacgg gtactttggt     180
ggacatgaag gaactggcca tatgggagcc attggctgng aagctgcana cttataagac     240
agcagtggag acggcagttc tgctactgcg aattgatgac atcgtttcag gccacaaaaa     300
gaaaggcgat gaccanagcc ggcaaggcgg ggcttcctga tgctggacct cggccgccga     360
ccacgctt                                                             368
```

        <210> 271
        <211> 424
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(424)
        <223> n = A,T,C or G

        <400> 271

```
agcgtggtcg cggccgaggt ccactagagg tctgtgtgcc attgcccagg cagagtctct      60
gcgttacaaa ctcctaggag ggcttgctgt gcggagggcc tgctatggtg tgctgcggtt     120
catcatggag agtgggggcca aaggctgcga ggttgtggtg tctgggaaac tccgaggaca     180
gagggctaaa tccatgaagt ttgtggatgg cctgatgatc cacngcggag accctgttaa     240
ctactacgtt gacactgctg tgcgccacgt gttgctcana cagggtgtgc tgggcatcaa     300
ggtgaagatc atgctgccct gggacccanc tggcaaaaat ggcccttaaa aacccttgc     360
cntgaccacg tgaaccattt gtgngaaccc caagatgaan atacttgccc accaccccc     420
attc                                                                 424
```

        <210> 272
        <211> 541
        <212> DNA
        <213> Homo sapicn

        <220>
        <221> misc_feature
        <222> (1)...(541)
        <223> n = A,T,C or G

        <400> 272

```
tcgagcggcc gcccgggcag gtctgccaag gagaccctgt tatgctgtgg ggactggctg      60
gggcatggca ggcggctctg gcttcccacc cttctgttct gagatggggg tggtgggcag     120
tatctcatct ttgggttcca caatgctcac gtggtcaggc aggggcttct tagggccaat     180
cttaccagtt gggtcccagg gcagcatgat cttcaccttg atgcccagca cacctgtct     240
gagcaacacg tggcgcacag cagtgtcaac gtagtagtta acagggtctc cgctgtggat     300
catcaggcca tccacaaact tcatggattt agccctctgt cctcggagtt tcccaaaaca     360
ccacaacctc gccagccttt gggccccact tcttcatgaa tgaaaccgca gcacaccatt     420
ancaaggccc ttccgcacag gnaagccctt cctaaggagt tttgtaaacg caaaaaactc     480
ttgcctgggg caaatgggca cacagaccctn tantnggacc ttggnccgcg aaccaccgct     540
t                                                                    541
```

        <210> 273
        <211> 579
        <212> DNA
        <213> Homo sapien

```
    <220>
    <221> misc_feature
    <222> (1)...(579)
    <223> n = A,T,C or G

    <400> 273
agcgtggtcg cggccgaggt ctggccctcc tggcaaggct ggtgaagatg gtcaccctgg          60
aaaacccgga cgacctggtg agagaggagt tgttggacca cagggtgctc gtggtttccc         120
tggaactcct ggacttcctg gcttcaaagg cattagggga cacaatggtc tggatggatt         180
gaagggacag cccggtgctc ctggtgtgaa gggtgaacct ggngcccctg gtgaaaatgg         240
aactccaggt caaacaggag cccgngggct tcctggngag agaggacgtg ttggtgcccc         300
tggcccanac ctgcccgggc ggccgctcna aaagccgaaa tccagnacac tggcggccgn         360
tactantgga atccgaactt cggtaccaaa gcttggccgt aatcatggcc atagcttgtt         420
ccctggggng gaaattggta ttccgctncc aattccacac aacataccga acccggaaag         480
cattaaagtg taaaagccct gggggggcct aaatgangtg agcntaactc ncatttaatt         540
ggcgttgcgc ttcactgccc cgcttttcca gtccgggna                                579

    <210> 274
    <211> 330
    <212> DNA
    <213> Homo sapien

    <220>
    <221> misc_feature
    <222> (1)...(330)
    <223> n = A,T,C or G

    <400> 274
tcgagcggcc gcccgggcag gtctgggcca ggggcaccaa cacgtcctct ctcaccagga          60
agcccacggg ctcctgtttg acctggagtt ccattttcac caggggcacc aggttcaccc         120
ttcacaccag gagcaccggg ctgtcccttc aatccatcca gaccattgtt ncccctaatg         180
cctttgaagc caggaagtcc acgagttcca gggaaaccac gagcaccctg tggtccaaca         240
actcctctct caccaggtcg tccgggtttt ccagggtgac catcttcacc agccttgcca         300
ggagggccag acctcggccg cgaccacgct                                          330

    <210> 275
    <211> 97
    <212> DNA
    <213> Homo sapien

    <220>
    <221> misc_feature
    <222> (1)...(97)
    <223> n = A,T,C or G

    <400> 275
ancgtggtcg cggccgaggt cctcaccaga ggtgncacct acaacatcat agtggaggca          60
ctgaaagacc ancagaggca taaggttcgg gaagagg                                   97

    <210> 276
    <211> 610
    <212> DNA
    <213> Homo sapien

    <220>
```

```
     <221> misc_feature
     <222> (1)...(610)
     <223> n = A,T,C or G

     <400> 276
tcgagcggcc gccgggcag gtccattttc tccctgacgg tcccacttct ctccaatctt      60
gtagttcaca ccattgtcat ggcaccatct agatgaatca catctgaaat gaccacttcc     120
aaagcctaag cactggcaca acagtttaaa gcctgattca gacattcgtt cccactcatc     180
tccaacggca taatgggaaa ctgtgtaggg gtcaaagcac gagtcatccg taggttggtt     240
caagccttcg ttgacagagt tgtccacggt aacaacctct tcccgaacct tatgcctctg     300
ctggtctttc agtgcctcca ctatgatgtt gtaggtggca cctctggtga ggacctcngn     360
ccngaacaac gcttaagccc gnattctgca gaataatccc atcacacttg gcggccgctt     420
cgancatgca tcntaaaagg ggccccaatt tcccccttat aagngaancc gtatttncca     480
atttcactgg ncccgccgnt tttacaaacg ncggtganct ggggaaaaac cctggcggtt     540
acccaacttt aatcgccntt ggcagcacaa tccccccttt tcgnccancn tgggcgtaaa     600
taaccgaaaa                                                            610


     <210> 277
     <211> 38
     <212> DNA
     <213> Homo sapien

     <220>
     <221> misc_feature
     <222> (1)...(38)
     <223> n = A,T,C or G

     <400> 277
ancgnggtcg cggccgangt ntttttttctt nttttttt                             38


     <210> 278
     <211> 443
     <212> DNA
     <213> Homo sapien

     <220>
     <221> misc_feature
     <222> (1)...(443)
     <223> n = A,T,C or G

     <400> 278
agcgtggtcg cggccgaggt ctgaggttac atgcgtggtg gtggacgtga gccacgaaga      60
ccctgaggtc aagttcaact ggtacgtgga cggcgtggag gtgcataatg ccaagacaaa     120
gccgcgggag gagcagtaca acagcacgta ccgggnggtc agcgtcctca ccgtcctgca     180
ccagaattcg ttgaatggca aggagtacaa gngcaaggtt tccaacaaag ccntcccagc     240
cccntcgaa aaaaccattt ccaaagccaa agggcagccc cgagaaccac aggtgtacac     300
cctgccccca tcccgggagg aaaagancaa naaccnggtt cagccttaac ttgcttggtc     360
naangctttt tatcccaacg nacttccccc ntggaantgg gaaaaaccaa tgggccaanc     420
cgaaaaacaa ttacaanaac ccc                                             443


     <210> 279
     <211> 348
     <212> DNA
     <213> Homo sapien
```

```
        <220>
        <221> misc_feature
        <222> (1)...(348)
        <223> n = A,T,C or G

        <400> 279
tcgagcggcc gcccgggcag gtgtcggagt ccagcacggg aggcgtggtc ttgtagttgt    60
tctccggctg cccattgctc tcccactcca cggcgatgtc gctgggatag aagcctttga   120
ccaggcaggt caggctgacc tggttcttgg tcatctcctc ccgggatggg ggcagggtga   180
acacctgggg ttctcggggc ttgccctttg gtttttgaana tggtttyctc gatgggggct   240
ggaagggctt tgttgnaaac cttgcacttg actccttgcc attcacccag ncctggngca   300
ggacggngag gacnctnacc acacggaacc gggctggtgg actgctcc               348


        <210> 280
        <211> 149
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(149)
        <223> n = A,T,C or G

        <400> 280
agcgtggtcg cggacgangt cctgtcagag tggnactggt agaagttcca ngaaccctga    60
actgtaaggg ttcttcatca gtgccaacag gatgacatga aatgatgtac tcagaagngn   120
cctggaatgg ggcccatgan atggttgcc                                     149


        <210> 281
        <211> 404
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(404)
        <223> n = A,T,C or G

        <400> 281
tcgagcggcc gcccgggcag gtccaccaca cccaattcct tgctggtatc atggcagccg    60
ccacgtgcca ggattaccgg ctacatcatc aagtatgaga agcctgggtc tcctcccaga   120
gaagtggtcc ctcggccccg ccctggtgtc acagaggcta ctattactgg cctggaaccg   180
ggaaccgaat atacaattta tgtcattgcc ctgaagaata atcagaagag cgagcccctg   240
attggaagga aaaagacaga cgagcttccc caactggtaa cccttccaca cccaatctt    300
catggaccag agatcttgga tgttccttcc acagttcaaa agaccccttt cggcacccc   360
cctgggtatg aacctgggaa aangngnantt aanctttcct ggca                  404


        <210> 282
        <211> 507
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(507)
```

<223> n = A,T,C or G

<400> 282

```
agcgtggtcg cggccgaggt ctgggatgct cctgctgtca cagtgagata ttacaggatc      60
acttacggag aaacaggagg aaatagccct gtccaggagt tcactgtgcc tgggagcaag     120
tctacagcta ccatcagcgg ccttaaacct ggagttgatt ataccatcac tgtgtatgct     180
gtcactggcc gtggagacag ccccgcaagc agcaagccaa tttccattaa ttaccgaaca     240
gaaattgaca aaccatccca gatgcaagtg accgatgttc aggacaacag cattagtgtc     300
aagtggctgc cttcaaggtn ccctggtact gggttacaga ntaaccacca ctcccaaaaa     360
tggaccagga accacaaaaa cttaaactgc agggtccaga tcaaaacaga aatgactatt     420
gaangcttgc agcccacagt gggagtatgn gggtagtgnc tatgcttcag aatccaagcg     480
gaaaaangtc aagccttntg ggttcaa                                        507
```

<210> 283
<211> 325
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(325)
<223> n = A,T,C or G

<400> 283

```
tcgagcggcc gcccgggcag gtccttgcag ctctgcagtg ncttcttcac catcaggtgc      60
agggaatagc tcatggattc catcctcagg gctcgagtag gtcaccctgt acctggaaac     120
ttgcccctgt gggctttccc aagcaatttt gatggaatng acatccacat cagtgaatgc     180
cagtccttta gggcgatcaa tgttggttac tgcagnctga accagaggct gactctctcc     240
gcttcggatt ctgagcataga cactaaccac atactccact gtgggctgca anccttcaat     300
aanncatttc tgtttgatct ggacc                                          325
```

<210> 284
<211> 331
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(331)
<223> n = A,T,C or G

<400> 284

```
tcgagcggcc gcccgggcag gtctggtggg gtcctggcac acgcacatgg gggngttgnt      60
ctnatccagc tgcccagccc ccattggcga gtttgagaag gtgtgcagca atgacaacaa     120
naccttcgac tcttcctgcc acttctttgc cacaaagtgc accctggagg gcaccaagaa     180
gggccacaag ctccacctgg actacatcgg gccttgcaaa tacatccccc cttgcctgga     240
ctctgagctg accgaattcc cccttgcgca tgcgggactg gctcaagaac cgtcctggca     300
cccttgtatg anaggatga agacacnacc c                                    331
```

<210> 285
<211> 509
<212> DNA
<213> Homo sapien

<220>

```
        <221> misc_feature
        <222> (1)...(509)
        <223> n = A,T,C or G

        <400> 285
agcgtggtcg cggccgaggt ctgtcctaca gtcctcagga ctctactccc tcagcagcgt        60
ggtgaccgtg ccctccagca acttcggcac ccagacctac acctgcaacg tagatcacaa       120
gcccagcaac accaaggtgg acaagagagt tgagcccaaa tcttgtgaca aaactcacac       180
atgcccaccg tgcccagcac ctgaactcct ggggggaccg tcagtcttcc tcttcccccg       240
catccccctt ccaaacctgc ccgggcggcc gctcgaaagc cgaattccag cacactggcg       300
gccggtacta gtgganccna acttggnanc caacctggng gaantaatgg gcataanctg       360
tttctggggg gaaattcgta tccngtttac aattcccnca caacatacga gccggaagca       420
taaaagngta aaagcctggg ggnggcctan tgaagtgaag ctaaactcac attaattngc       480
gttgccgctc actggcccgc ttttccagc                                         509

        <210> 286
        <211> 336
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(336)
        <223> n = A,T,C or G

        <400> 286
tcgagcggcc gcccgggcag ctttggaagg gggatgcggg ggaagaggaa gactgacggt       . 60
ccccccagga gttcaggtgc tgggcacggt gggcatgtgt gagttttgtc acaagatttg       120
ggctcaactc tcttgtccac cttggtgttg ctgggcttgt gatctacgtt gcaggtgtag       180
gtctgggngc cgaagttgct ggagggcacg gtcaccacgc tgctgaggga gtagagtcct       240
gaggactgta ngacagacct cggccgngac cacgctaagc cgaattctgc agatatccat       300
cacactggcg gccgctccga gcatgcattt tagagg                                 336

        <210> 287
        <211> 30
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(30)
        <223> n = A,T,C or G

        <400> 287
agcgtggncg cggacganga caacaaccc                                          30

        <210> 288
        <211> 316
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(316)
        <223> n = A,T,C or G
```

<400> 288

```
tcgagcggcc gcccgggcag gnccacatcg gcagggtcgg agccctggcc gccatactcg    60
aactggaatc catcggtcat gctcttgccg aaccagacat gcctcttgtc cttggggttc   120
ttgctgatgn accagttctt ctgggccaca ctgggctgag tggggtacac gcaggtctca   180
ccagtctcca tgttgcagaa gactttgatg gcatccaggt tgcagccttg gttggggtca   240
atccagtact ctccactctt ccagtcagag tggcacatct tgaggtcacg gcaggtgcgg   300
gcggggttct tgacct                                                    316
```

<210> 289
<211> 308
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(308)
<223> n = A,T,C or G

<400> 289

```
agcgtggtcg cggccgaggt ccagcctgga gataanggtg aagtggtgc cccgggactt     60
ccaggtatag ctggacctcg tggtagccct ggtgagagag gtgaaactgg ccctccagga    120
cctgctggtt tccctggtgc tcctggacag aatggtgaac ctggnggtaa aggagaaaga    180
ggggctccgg ntganaaagg tgaaggaggc cctcctgnat tggcaggggc cccangactt    240
agaggtggag ctggcccccc tggccccgaa ggaggaaagg gtgctgctgg tcctcctggg    300
ccacctgg                                                             308
```

<210> 290
<211> 324
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(324)
<223> n = A,T,C or G

<400> 290

```
tcgagcggcc gcccgggcag gtctgggcca ggaggaccaa taggaccagt aggacccctt    60
gggccatctt tccctgggac accatcagca cctggaccgc ctggttcacc cttgtcaccc   120
tttggaccag gacttccaag acctcctctt tctccaggca ttccttgcag accaggagta   180
ccancagcac caggtggccc aggaggacca gcagcaccct ttcctccttc gggaccaggg   240
ggaccagctc cacctctaag tcctggggcc cctgccaatc caggagggcc tccttcacct   300
ttctcacccg gagcccctct ttct                                          324
```

<210> 291
<211> 278
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(278)
<223> n = A,T,C or G

<400> 291
tcgagcggcc gcccgggcag gtccaccggg atattcgggg gtctggcagg aatgggaggc   60
atccagaacg agaaggagac catgcaaagc ctgaacgacc gcctggcctc ttacctggac   120
agagtgagga gcctggagac cgacaaccgg aggctggaga gcaaaatccg ggagcacttg   180
gagaagaagg gaccccaggt cagagactgg agccattact tcaagatcat cgaggacctg   240
agggctcana tcttcgcaaa tactgcngac aatgcccg   278

        <210> 292
        <211> 299
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(299)
        <223> n = A,T,C or G

        <400> 292
atgcqnggtc gcggccgang accanctctg gctcatactt gactctaaag ncntcaccag   60
nanttacggn cattgccaat ctgcagaacg atgcgggcat tgtccgcant atttgcgaag   120
atctgagccc tcaggncctc gatgatcttg aagtaanggc tccagtctct gacctggggt   180
cccttcttct ccaagtgctc ccggattttg ctctccagcc tccggttctc ggtctccaag   240
ncttctcact ctgtccagga aaagaggcca ggcggncgat cagggctttt gcatcgact   299

        <210> 293
        <211> 101
        <212> DNA
        <213> Homo sapien

        <400> 293
agccgtggtcg cggccgaggt tgtacaagct tttttttttt tttttttttt tttttttttt   60
tttttttttt tttttttttt tttttttttt tttttttttt t   101

        <210> 294
        <211> 285
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(285)
        <223> n = A,T,C or G

        <400> 294
tcgagcggcc gcccgggcag gtctgccaac accaagattg gcccccgccg catccacaca   60
gttngtgtgc ggggaggtaa caagaaatac cgtgccctga ggntggacgn ggggaatttc   120
tcctggggct cagagtgttg tactcgtaaa acaaggatca tcgatgttgt ctacaatqca   180
tctaataacg agctggttcg taccaagacc ctggtgaaga attgcatcgt gctcatngac   240
agcacaccgt accgacagtg ggtaccgaag tcccactatg cncct   285

        <210> 295
        <211> 216
        <212> DNA
        <213> Hcmo sapien

```
    <400> 295
tcgagcggcc gcccgggcag gtccaccaca cccaattcct tgctggtatc atggcagccg      60
ccacgtgcca ggattaccgg ctacatcatc aagtatgaga agcctgggtc tcctcccaga     120
gaagtggtcc ctcggccccg ccctggtgtc acagaggcta ctattactgg cctggaaccg     180
ggaaccgaat atacaattta tgtcattgcc ctgaag                              216
```

```
    <210> 296
    <211> 414
    <212> DNA
    <213> Homo sapien

    <220>
    <221> misc_feature
    <222> (1)...(414)
    <223> n = A,T,C or G
```

```
    <400> 296
agcgtgntcn cggccgagga tggggaagct cgnctgtctt tttccttcca atcagggggct     60
nnntcttctc attattcttc agggcaanga cataaattgt atattcggnt cccggttcca     120
gnccagtaat agtagcctct gtcacaccag ggcgcggccg agggaccact tctctgggag     180
gagacccagg cttctcatac ttgatgatga agccggtaat cctggcacgt gggcggctgc     240
catgatacca ccaangaatt gggtgtggtg gacctgcccg ggcgggccgc tcgaaaancc     300
gaattcntgc aagaatatcc atcacacttg ggcgggccgn tcgaaccatg catcntaaaa     360
gggccccaat ttcccccta ttaggngaag ccncatttaa caaattccac ttgg           414
```

```
    <210> 297
    <211> 376
    <212> DNA
    <213> Homo sapien

    <220>
    <221> misc_feature
    <222> (1)...(376)
    <223> n = A,T,C or G
```

```
    <400> 297
tcgagcggcc gcccgggcag gtctcgcggt cgcactggtg atgctggtcc tgttggtccc     60
cccggccctc ctggacctcc tggtcccccct ggtcctccca gcgctggttt cgacttcagc     120
ttcctgcccc agccacctca agagaaggct cacgatggtg gccgctacta ccgggctgat     180
gatgccaatg tggttcgtga ccgtgacctc gaggtggaca ccaccctcaa gagccttgag     240
ccagcagaat cgaaaacatt cggnacccaa gaagggcaag cccgcaaaga aacccngccc     300
gcacctggcc gngaacctcc aagaangtgc ccacntcttg actgggaaaa aaagggaaaa     360
ntacttggaa ttggac                                                    376
```

```
    <210> 298
    <211> 357
    <212> DNA
    <213> Homo sapien

    <220>
    <221> misc_feature
    <222> (1)...(357)
    <223> n = A,T,C or G

    <400> 298
```

```
agcgtggtcg cggccgaggt ccacatcggc agggtcggag ccctggccgc catactcgaa       60
ctggaatcca tcggtcatgc tctcgccgaa ccagacatgc ctcttgtcct tggggttctt      120
gctgatgtac cagttcttct gggccacact gggctgagtg gggtacacgc aggtctcacc      180
agtctccatg ttgcagaaga ctttgatggc atccaggttg cagccttggt tggggtcaat      240
ccagtactct ccactcttcc agtcagaagt ggcacatctt gagytcacgg cagggtgcgg      300
gcggggttct tgcgggctgc ccttctgggc tcccggaatg ttctnngaac ttgctgg        357
```

        <210> 299
        <211> 307
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(307)
        <223> n = A,T,C or G

        <400> 299

```
agcgtggtcg cggccgaggt ccactagagg tctgtgtgcc attgcccagg cagagtctct       60
gcgttacaaa ctcctacgag ggcttgctgt gcggagggcc tgctatggtg tgctgcggtt      120
catcatggag agtgggggcca aaggctgcga ggttgtggtg tctgggaaac tccgaggaca      180
gagggctaaa tccatgaagt ttgtggatgg cctgatgatc cacagcggag accctgttaa      240
ctactacgtt gacacttgct tgtgcgccac gtgttgctca nacangggtg ggctgggcat      300
caaggng                                                                307
```

        <210> 300
        <211> 351
        <212> DNA
        <213> Homo sapien

        <400> 300

```
tcgagcggcc gcccgggcag gtctgccaag gagaccctgt tatgctgtgg ggactggctg       60
gggcatggca ggcggctctg gcttcccacc cttctgttct gagatggggg tggtgggcag      120
tatctcatct ttgggttcca caatgctcac gtggtcaggc aggggcttct tagggccaat      180
cttaccagtt gggtcccagg gcagcatgat cttcaccttg atgcccagca caccctgtct      240
gagcaacacg tggcgcacag caagtgtcaa cgtaagtaag ttaacagggt ctccgctgtg      300
gatcatcagg ccatccacaa acttcatgga tttaaccctc tgtcctcgga g              351
```

        <210> 301
        <211> 330
        <212> DNA
        <213> Homo sapien

        <400> 301

```
tcgagcggcc gcccgggcag gtgtttcaga ggttccaagg tccactgtgg aggtcccagg       60
agtgctggtg gtgggcacag aggtccgatg ggtgaaacca ttgacataga gactgttcct      120
gtccagggtg tagggcccca gctctttgat gccattggcc agttggctca gctcccagta      180
cagccgctct ctgttgagtc cagggctttt ggggtcaaga tgatggatgc agatggcatc      240
cactccagtg gctgctccat ccttctcgga cctgagagag gtcagtctgc agccagagta      300
cagagggcca acactggtgt tctttgaata                                       330
```

        <210> 302
        <211> 317
        <212> DNA
        <213> Homo sapien

```
     <220>
     <221> misc_feature
     <222> (1)...(317)
     <223> n = A,T,C or G

     <400> 302
agcgtggtcg cggccgaggt ctgtactggg agctaagcaa nctgaccaat gacattgaag        60
agctgggccc ctacaccctg gacaggaaca gtctctatgt caatggtttc acccatcaga       120
gctctgtgnc caccaccagc actcctggga cctccacagt ggatttcaga acctcaggga       180
ctccatcctc cctctccagc cccacaatta tggctgctgg ccctctcctg gtaccattca       240
ccctcaactt caccatcacc aacctgcagt atggggagga catgggtcac cctgnctcca       300
ggaagttcaa caccaca                                                        317

     <210> 303
     <211> 283
     <212> DNA
     <213> Homo sapien

     <220>
     <221> misc_feature
     <222> (1)...(283)
     <223> n = A,T,C or G

     <400> 303
tcgagcggcc gcccggacag gtctggcgg atagcaccgg gcatattttg gaatggatga         60
ggtctggcac cctgagcagt ccagcgagga cttggtctta gttgagcaat ttggctagga       120
ggatagtatg cagcacggnt ctgagnctgt gggatagctg ccatgaagta acctgaagga       180
ggtgctggct ggtangggtt gattacaggg ttgggaacag ctcgtacact tgccattctc       240
tgcatatact ggttagtgag gtgagcctgg ccctcttctt ttg                         283

     <210> 304
     <211> 72
     <212> DNA
     <213> Homo sapien

     <220>
     <221> misc_feature
     <222> (1)...(72)
     <223> n = A,T,C or G

     <400> 304
agcgtggtcg cggccgaggt gagccacagg tgaccggggc tgaagctggg gctgctggnc         60
ctgctggtcc tg                                                             72

     <210> 305
     <211> 245
     <212> DNA
     <213> Homo sapien

     <220>
     <221> misc_feature
     <222> (1)...(245)
     <223> n = A,T,C or G
```

<400> 305

```
cagcngctcc nacggggcct gngggaccaa caacaccgtt ttcacccttа ggccctttgg      60
ctcctctttc tcctttagca ccaggttgac cagcagcncc ancaggacca gcaaatccat     120
tggggccagc aggaccgacc tcaccacgtt caccaggct tccccgagga ccagcaggac      180
cagcaggacc agcagcccca gcttcgcccc ggtcacctgt ggctcacctc ggccgcgacc     240
acgct                                                                 245
```

<210> 306
<211> 246
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(246)
<223> n = A,T,C or G

<400> 306

```
tcgagcggtc gccgggcag gtccaccggg atagccgggg gtctggcagg aatgggaggc       60
atccagaacg acaaggagac catgcaaagc ctgaacgacc gcctggcctc ttacctggac     120
agagtgagga gcctggagac cganaaccgg aggctggana gcaaaatccg ggagcacttg      180
gagaagaagg gaccccaggt caagagactg gagccattac ttcaagatca tcgagggacc      240
tggagg                                                                246
```

<210> 307
<211> 333
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(333)
<223> n = A,T,C or G

<400> 307

```
agcgnggtcg cggccgaggt ccagctctgt ctcatacttg actctaaagt catcagcagc      60
aagacgggca ttgtcaatct gcagaacgat gcgggcattg tccgcagtat ttgcgaagat     120
ctgagccctc aggtcctcga tgatcttgaa gtaatggctc cagtctctga cctggggtcc     180
cttcttctcc aagtgctccc ggattttgct ctccagcctc cggttctcgg tctccaggct     240
cctcactctg tccaggtaag aaggcccagg cggtcgttca ggctttgcat ggtctccttc     300
tcgttctgga tgcctcccat tcctgccaga ccc                                  333
```

<210> 308
<211> 310
<212> DNA
<213> Homo sapien

<400> 308

```
tcgagcggcc gccgggcag gtcaggaagc acattggtct tagagccact gcctcctgga       60
ttccacctgt gctgcggaca tctccaggga gtgcagaagg gaagcaggtc aaactgctca     120
gatcagtcag actggctgtt ctcagttctc acctgagcaa ggtcagtctg cagccagagt     180
acagagggcc aacactggtg ttcttgaaca agggcttgag cagaccctgc agaaccctct     240
tccgtggtgt tgaacttcct ggaaaccagg gtgttgcatg tttttcctca taatgcaagg     300
ttggtgatgg                                                            310
```

```
        <210> 309
        <211> 429
        <212> DNA
        <213> Homo sapien

        <400> 309
agcgtggtcg cggccgaggt ccacatcggc agggtcggag ccctggccgc catactcgaa      60
ctggaatcca tcggtcatgc tctcgccgaa ccagacatgc ctcttgtcct tggggttctt     120
gctgatgtac cagttcttct gggccacact gggctgagtg gggtacaccg caggtctcac     180
cagtctccat gttgcagaag actttgatgg catccaggtt gcagccttgg ttggggtcaa     240
tccagtactc tccactcttc cagtcagaag tgggcacatc ttgaggtcac cggcaggtgc     300
cgggccgggg gttcttgcgg cttgccctct gggctccgga tgttctcgat ctgcttggct     360
caggctcttg agggtgggtg tccacctcga ggtcacggtc accgaaacct gcccggcgg      420
cccgctcga                                                             429


        <210> 310
        <211> 430
        <212> DNA
        <213> Homo sapien

        <220>
        <221> misc_feature
        <222> (1)...(430)
        <223> n = A,T,C or G

        <400> 310
tcgagcggtc gcccgggcag gtttcgtgac cgtgacctcg aggtggacac caccctcaag    · 60
agcctgagcc agcagatcga gaacatccgg agcccagagg gcagccgcaa gaaccccgcc     120
cgcacctgcc gtgacctcaa gatgtgccac tctgactgca agagtggaga gtactggatt     180
gaccccaacc aaggctgcaa cctggatgcc atcaaagtct tctgcaacat ggagactggt     240
gagacctgcg tgtaccccac tcagcccagt gtgggcccag aagaaactgg tacatcagca     300
aggaacccca aggacaagag gcattgtctt ggttcggcga gnagcatgac ccgatggatt     360
ccagtttcga gtattggcgg ccagggcttc ccgacccttg ccgatgtgga cctcggccgc     420
gaccaccgct                                                            430


        <210> 311
        <211> 2996
        <212> DNA
        <213> Homo sapien

        <400> 311
cagccaccgg agtggatgcc atctgcaccc accgccctga ccccacaggc cctgggctgg      60
acagagagca gctgtatttg gagctgagcc agctgaccca cagcatcact gagctgggcc     120
cctacaccct ggacagggac agtctctatg tcaatggttt cacacagcgg agctctgtgc     180
ccaccactag cattcctggg accccacag tggacctggg aacatctggg actccagttt      240
ctaaacctgg tccctcggct gccagccctc tcctggtgct attcactctc aacttcacca     300
tcaccaacct gcggtatgag gagaacatgc agcaccctgg ctccaggaag ttcaacacca     360
cggagagggt ccttcagggc ctggtccctg ttcaagagca ccagtgttgg ccctctgtac     420
tctggctgca gactgacttt gctcaggcct gaaaaggatg ggacagccac tggagtggat     480
gccatctgca cccaccaccc tgaccccaaa agccctaggc tggacagaga gcagctgtat     540
tgggagctga gccagctgac ccacaatatc actgagctgg cccctatgc cctggacaac      600
gacagcctct ttgtcaatgg tttcactcat cggagctctg tgtccaccac cagcactcct     660
gggacccca cagtgtatct gggagcatct aagactccag cctcgatatt tggcccttca      720
gctgccagcc atctcctgat actattcacc ctcaacttca ccatcactaa cctgcggtat     780
gaggagaaca tgtggcctgg ctccaggaag ttcaacacta cagagagggt ccttcagggc     840
```

```
ctgctaaggc ccttgttcaa gaacaccagt gttggccctc tgtactctgg ctgcaggctg      900
accttgctca ggccagagaa agatgcggaa gccaccggag tggatgccat ctgcacccac      960
cgccctgacc ccacaggccc tgggctggac agagagcagc tgtatttgga gctgagccag     1020
ctgacccaca gcatcactga gctgggcccc tacacactgg acaggacag tctctatgtc      1080
aatggtttca cccatcggag ctctgtaccc accaccagca ccggggtggt cagcgaggag     1140
ccattcacac tgaacttcac catcaacaac ctgcgctaca tggcggacat gggccaaccc     1200
ggctccctca agttcaacat cacagacaac gtcatgaagc acctgctcag tcctttgttc     1260
cagaggagca gcctggctgc acggtacaca ggctgcaggg tcatcgcact aaggtctgtg     1320
aagaacggtg ctgagacacg ggtggacctc ctctgcacct acctgcagcc cctcagcggc     1380
ccaggtctgc ctatcaagca ggtgttccat gagctgagcc agcagaccca tggcatcacc     1440
cggctgggcc cctactctct ggacaaagac agcctctacc ttaacggtta caatgaacct     1500
ggtccagatg agcctcctac aactcccaag ccagccacca cattcctgcc tcctctgtca     1560
gaagccacaa cagccatggg gtaccacctg aagaccctca cactcaactt caccatctcc     1620
aatctccagt attcaccaga tatgggcaag ggctcagcta cattcaactc caccgagggg     1680
gtccttcagc acctgctcag acccttgttc cagaagagca gcatgggccc cttctacttg     1740
ggttgccaac tgatctccct caggcctgag aaggatgggg cagccactgg tgtggacacc     1800
acctgcacct accaccctga ccctgtgggc cccgggctgg acatacagca gctttactgg     1860
gagctgagtc agctgaccca tggtgtcacc caactgggct ctatgtcct ggacagggat     1920
agcctcttca tcaatggcta tgcaccccag aatttatcaa tccggggcga gtaccagata     1980
aattccaca ttgtcaactg gaacctcagt aatccagacc ccacatcctc agagtacatc     2040
accctgctca gggacatcca ggacaaggtc accacactct acaaaggcag tcaactacat     2100
gacacattcc gcttctgcct ggtcaccaac ttgacgatgg actccgtgtt ggtcactgtc     2160
aaggcattgt tctcctccaa tttggacccc agcctggtgg agcaagtctt tctagataag     2220
accctgaatg cctcattcca ttggctgggc tccacctacc agttggtgga catccatgtg     2280
acagaaatgg agtcatcagt ttatcaacca acaagcagct ccagcaccca gcacttctac     2340
ctgaatttca ccatcaccaa cctaccatat tcccaggaca aagcccagcc aggcaccacc     2400
aattaccaga ggaacaaaag gaatattgag gatgcgctca accaactctt ccgaaacagc     2460
agcatcaaga gttattttc tgactgtcaa gtttcaacat tcaggtctgt ccccaacagg     2520
caccacaccg gggtggactc cctgtgtaac ttctcgccac tggctcggag agtagacaga     2580
gttgccatct atgaggaatt tctgcggatg acccggaatg gtacccagct gcagaacttc     2640
accctggaca ggagcagtgt ccttgtggat gggtatttc ccaacagaaa tgagcccta      2700
actgggaatt ctgaccttcc cttctgggct gtcatcctca tggcttggc aggactcctg      2760
ggaccatca catgcctgat ctgcggtgtc ctggtgacca cccgccggcg gaagaaggaa      2820
ggagaataca acgtccagca acagtgccca ggctactacc agtcacacct agacctggag      2880
gatctgcaat gactggaact tgccggtgcc tggggtgcct ttccccagc cagggtccaa      2940
agaagcttgg ctgggcagaa aataaaccat attggtcgga cacaaaaaaa aaaaa           2996
```

```
        <210> 312
        <211> 914
        <212> PRT
        <213> Homo sapien

        <400> 312
Met Ser Met Val Ser His Ser Gly Ala Leu Cys Pro Pro Leu Ala Phe
1               5                   10                  15
Leu Gly Pro Pro Gln Trp Thr Trp Glu His Leu Gly Leu Gln Phe Leu
                20                  25                  30
Asn Leu Val Pro Arg Leu Pro Ala Leu Ser Trp Cys Tyr Ser Leu Ser
        35                  40                  45
Thr Ser Pro Ser Pro Thr Cys Gly Met Arg Arg Thr Cys Ser Thr Leu
    50                  55                  60
Ala Pro Gly Ser Ser Thr Pro Arg Arg Gly Ser Phe Arg Ala Trp Ser
65                  70                  75                  80
Leu Phe Lys Ser Thr Ser Val Gly Pro Leu Tyr Ser Gly Cys Arg Leu
                85                  90                  95
```

```
Thr Leu Leu Arg Pro Glu Lys Asp Gly Thr Ala Thr Gly Val Asp Ala
             100                 105                 110
Ile Cys Thr His His Pro Asp Pro Lys Ser Pro Arg Leu Asp Arg Glu
        115                 120                 125
Gln Leu Tyr Trp Glu Leu Ser Gln Leu Thr His Asn Ile Thr Glu Leu
    130                 135                 140
Gly Pro Tyr Ala Leu Asp Asn Asp Ser Leu Phe Val Asn Gly Phe Thr
145                 150                 155                 160
His Arg Ser Ser Val Ser Thr Thr Ser Thr Pro Gly Thr Pro Thr Val
                165                 170                 175
Tyr Leu Gly Ala Ser Lys Thr Pro Ala Ser Ile Phe Gly Pro Ser Ala
             180                 185                 190
Ala Ser His Leu Leu Ile Leu Phe Thr Leu Asn Phe Thr Ile Thr Asn
        195                 200                 205
Leu Arg Tyr Glu Glu Asn Met Trp Pro Gly Ser Arg Lys Phe Asn Thr
    210                 215                 220
Thr Glu Arg Val Leu Gln Gly Leu Leu Arg Pro Leu Phe Lys Asn Thr
225                 230                 235                 240
Ser Val Gly Pro Leu Tyr Ser Gly Cys Arg Leu Thr Leu Leu Arg Pro
                245                 250                 255
Glu Lys Asp Gly Glu Ala Thr Gly Val Asp Ala Ile Cys Thr His Arg
             260                 265                 270
Pro Asp Pro Thr Gly Pro Gly Leu Asp Arg Glu Gln Leu Tyr Leu Glu
        275                 280                 285
Leu Ser Gln Leu Thr His Ser Ile Thr Glu Leu Gly Pro Tyr Thr Leu
    290                 295                 300
Asp Arg Asp Ser Leu Tyr Val Asn Gly Phe Thr His Arg Ser Ser Val
305                 310                 315                 320
Pro Thr Thr Ser Thr Gly Val Val Ser Glu Glu Pro Phe Thr Leu Asn
                325                 330                 335
Phe Thr Ile Asn Asn Leu Arg Tyr Met Ala Asp Met Gly Gln Pro Gly
             340                 345                 350
Ser Leu Lys Phe Asn Ile Thr Asp Asn Val Met Lys His Leu Leu Ser
        355                 360                 365
Pro Leu Phe Gln Arg Ser Ser Leu Gly Ala Arg Tyr Thr Gly Cys Arg
    370                 375                 380
Val Ile Ala Leu Arg Ser Val Lys Asn Gly Ala Glu Thr Arg Val Asp
385                 390                 395                 400
Leu Leu Cys Thr Tyr Leu Gln Pro Leu Ser Gly Pro Gly Leu Pro Ile
                405                 410                 415
Lys Gln Val Phe His Glu Leu Ser Gln Gln Thr His Gly Ile Thr Arg
             420                 425                 430
Leu Gly Pro Tyr Ser Leu Asp Lys Asp Ser Leu Tyr Leu Asn Gly Tyr
        435                 440                 445
Asn Glu Pro Gly Pro Asp Glu Pro Pro Thr Thr Pro Lys Pro Ala Thr
    450                 455                 460
Thr Phe Leu Pro Pro Leu Ser Glu Ala Thr Thr Ala Met Gly Tyr His
465                 470                 475                 480
Leu Lys Thr Leu Thr Leu Asn Phe Thr Ile Ser Asn Leu Gln Tyr Ser
                485       .         490                 495
Pro Asp Met Gly Lys Gly Ser Ala Thr Phe Asn Ser Thr Glu Gly Val
             500                 505                 510
Leu Gln His Leu Leu Arg Pro Leu Phe Gln Lys Ser Ser Met Gly Pro
        515                 520                 525
Phe Tyr Leu Gly Cys Gln Leu Ile Ser Leu Arg Pro Glu Lys Asp Gly
```

```
        530                    535                    540
Ala Ala Thr Gly Val Asp Thr Thr Cys Thr Tyr His Pro Asp Pro Val
545                    550                    555                    560
Gly Pro Gly Leu Asp Ile Gln Gln Leu Tyr Trp Glu Leu Ser Gln Leu
                       565    .                570                    575
Thr His Gly Val Thr Gln Leu Gly Phe Tyr Val Leu Asp Arg Asp Ser
                580                    585                    590
Leu Phe Ile Asn Gly Tyr Ala Pro Gln Asn Leu Ser Ile Arg Gly Glu
             595                    600                    605
Tyr Gln Ile Asn Phe His Ile Val Asn Trp Asn Leu Ser Asn Pro Asp
    610                    615                    620
Pro Thr Ser Ser Glu Tyr Ile Thr Leu Leu Arg Asp Ile Gln Asp Lys
625                    630                    635                    640
Val Thr Thr Leu Tyr Lys Gly Ser Gln Leu His Asp Thr Phe Arg Phe
                645                    650                    655
Cys Leu Val Thr Asn Leu Thr Met Asp Ser Val Leu Val Thr Val Lys
             660                    665                    670
Ala Leu Phe Ser Ser Asn Leu Asp Pro Ser Leu Val Glu Gln Val Phe
        675                    680                    685
Leu Asp Lys Thr Leu Asn Ala Ser Phe His Trp Leu Gly Ser Thr Tyr
    690                    695                    700
Gln Leu Val Asp Ile His Val Thr Glu Met Glu Ser Ser Val Tyr Gln
705                    710                    715                    720
Pro Thr Ser Ser Ser Ser Thr Gln His Phe Tyr Leu Asn Phe Thr Ile
                725                    730                    735
Thr Asn Leu Pro Tyr Ser Gln Asp Lys Ala Gln Pro Gly Thr Thr Asn
             740                    745                    750
Tyr Gln Arg Asn Lys Arg Asn Ile Glu Asp Ala Leu Asn Gln Leu Phe
         755                    760                    765
Arg Asn Ser Ser Ile Lys Ser Tyr Phe Ser Asp Cys Gln Val Ser Thr
    770                    775                    780
Phe Arg Ser Val Pro Asn Arg His His Thr Gly Val Asp Ser Leu Cys
785                    790                    795                    800
Asn Phe Ser Pro Leu Ala Arg Arg Val Asp Arg Val Ala Ile Tyr Glu
                805                    810                    815
Glu Phe Leu Arg Met Thr Arg Asn Gly Thr Gln Leu Gln Asn Phe Thr
             820                    925                    830
Leu Asp Arg Ser Ser Val Leu Val Asp Gly Tyr Phe Pro Asn Arg Asn
         835                    840                    845
Glu Pro Leu Thr Gly Asn Ser Asp Leu Pro Phe Trp Ala Val Ile Leu
    850                    855                    860
Ile Gly Leu Ala Gly Leu Leu Gly Leu Ile Thr Cys Leu Ile Cys Gly
865                    870                    875                    880
Val Leu Val Thr Thr Arg Arg Lys Lys Glu Gly Glu Tyr Asn Val
                885                    890                    895
Gln Gln Gln Cys Pro Gly Tyr Tyr Gln Ser His Leu Asp Leu Glu Asp
             900                    905                    910
Leu Gln
```

```
<210> 313
<211> 656
<212> DNA
<213> Homo sapiens
```

```
<400> 313
acagccagtc ggagctgcaa gtgttctggg tggatcgcgy atatgcactc aaaatgctct 60
ttgtaaagga aagccacaac atgtccaagg gacctgaggc gacttggagg ctgagcaaag 120
tgcagtttgt ctacgactcc tcggagaaaa cccacttcaa agacgcagtc agtgctggga 180
agcacacagc caactcgcac cacctctctg ccttggtcac ccccgctggg aagtcctatg 240
agtgtcaagc tcaacaaacc atttcactgg cctctagtga tccgcagaag acggtcacca 300
tgatcctgtc tgcggtccac atccaacctt ttgacattat ctcagatttt gtcttcagtg 360
aagagcataa atgcccagtg catgagcggg agcaactgga agaaaccttg cccctgattt 420
tggggctcat cttgggcctc gtcatcatgg taacactcgc gatttaccac gtccaccaca 480
aaatgactgc caaccaggtg cagatccctc gggacagatc ccagtataag cacatgggct 540
agaggccgtt aggcaggcac cccctattcc tgctccccca actgcatcag gtagaacaac 600
aaaagcactt ttccatcttg tacacgagat acaccaacat agctacaatc aaacag       656


<210> 314
<211> 519
<212> DNA
<213> Homo sapiens


<400> 314
tgtgcgtgga ccagtcagct tccgggtgtg actggagcag ggcttgtcgt cttcttcaga 60
gtcactttgc aggggttggt gaagctgctc ccatccatgt acagctccca gtctactgat 120
gtttaaggat ggtctcggtg gttaggccca ctagaataaa ctgagtccaa tacctctaca 180
cagttatgtt taactgggct ctctgacacc gggaggaagg tggcggggtt taggtgttgc 240
aaacttcaat ggttatgcgg ggatgttcac agagcaagct ttggtatcta gctagtctag 300
cattcattag ctaatggtgt cctttggtat ttattaaaat caccacagca tagggggact 360
ttatgtttag gttttgtcta agagttagct tatctgcttc ttgtgctaac agggctattg 420
ctaccaggga ctttggacat gggggccagc gtttggaaac ctcatctagt tttttgaga 480
gataggccac tggccttgga cctcggccgc gaccacgct                          519


<210> 315
<211> 441
<212> DNA
<213> Homo sapiens


<400> 315
cacagagcgt ttattgacac caccactcct gaaaattggg atttcttatt aggttcccct 60
aaaagttccc atgttgatta catgtaaata gtcacatata tacaatgaag gcagtttctt 120
cagagccaac cagggtttat agtgctaggt aaatgtcatc tcttttgtgc tactgactca 180
ttgtcaaacg tctctgcact gttttcagcc tctccacgtt gcctctgtcc tgcttcttag 240
ttccttcttt gtgacaaacc aaaagaataa gaggatttag aacaggactg cttttcccct 300
atgatttaaa aattccaatg actttcgccc ttgggagaaa tttccaagga aatctctctc 360
gctcgctctc tccgtttttcc tttgtgagct tctgggggag ggttagtggt gactttttga 420
tacgaaaaaa tgcattttgt g                                             441


<210> 316
<211> 247
<212> DNA
<213> Homo sapiens


<400> 316
tggcgcggct gctggatttc accttcttgc acctgccggt gagcgcctgg ggtctaaagg 60
ggcgggatac tccattatgg cccctcgccc tgtagggctg gaatagttag aaaaggcaac 120
ccagtctagc ttggtaagaa gagagacatg cccccaacct cggcgccctt tttcctcacg 180
atctgctgtc cttacttcag cgactgcagg agcttcacct gcaagaaaac agcattgagc 240
tgctgac                                                             247
```

```
<210> 317
<211> 409
<212> DNA
<213> Homo sapiens

<400> 317
tgacagggct cctggagttg ttaagtcacc aagtagctgc aggggatgga cactgcccca 60
cacgatgtgg gatgaacagc agccttggtt tgtagcccag ggtgtccatg gatttgaccc 120
gaatgctccc tggaggccct gtggcgagga caggcactgg atggtccaga ccctctggct 180
ggaggagtgg tggagccagg actgggcctt cagccatgag ggctagaata acctgaccto 240
ttgcattcta acactgggtc attaatgaca cctttccagt ggatgttgca aaaaccaaca 300
ctgtcaggaa cctggccctg ggagggctca ggtgagctca caagagagg tcaagccaag 360
ccaaagggta ggkaacacac aacaccaggg gaaaccagcc cccaaacca            409

<210> 318
<211> 320
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(320)
<223> n = A,T,C or G

<400> 318
caaggnagat cttaagnggg gtcntatgta agtgtgctcc tggctccagg gttcctggag 60
cctcacgagg tcaggggaac ccttgtagaa ctccaccagc agcatcatct cgtgaaggat 120
gtcattggtc aggaagctgt cctggacgta ggccatctcc acatccatgg ggatgccata 180
gtcactgggc ctttgctcgg gaggaggcat cacccagaaa ggcgagatct tggactcggg 240
gcctgggttg ccagaatagt aaggggagca nagcagggcg aggcagggct ggaagccatt 300
gctggagccc tgcagccgca                                          320

<210> 319
<211> 212
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(212)
<223> n = A,T,C or G

<400> 319
tgaagcaata gcgcccccat tttacaggcg gagcatggaa gccagagagg tgggtgggcg 60
aggggtcct tccctggctc aggcagatgg gaagatgagg aagccgctga agacgctgtc 120
ggcctcagag ccctggtaaa tgtgaccctt tttggggtct ttttcaaccc anacctggtc 180
accctgctgc agacctcggc cgcgaccacg ct                            212

<210> 320
<211> 769
<212> DNA
<213> Homo sapiens

<400> 320
```

```
tggaggtgta gcagtgagag gagatytcag gcaagagtgt cacagcagag ccctaaascc 60
tccaactcac cagtgagaga tgagactgcc cagtactcag ccttcatctc ctgggccacc 120
tggagggcgt ctttctccat cagcgcatac tgagcagggg tactcagatc cttcttggaa 180
cctacaagga agagaagcac actggaaggg tcattctcct tcagggcatc ggccagccac 240
tgcctgccat gggaggtgga aagtaaggga tgagtgagtc tgcagggccc ctcccactga 300
cattcatagg cccaattacc ccctctctgg tcctacatgc attcttcttc ttcctgacca 360
cccctctgtt ctgaaccctc tcttcccgga gcctcccatt atattgcagg atgctcactt 420
acttggtatg ttccagagat gccacatcat tcaggttgaa gacaatgatg atggcttgga 480
agagtggcag aaacagcccc aggttgacag ggaagacact actgctcatt tccccaatcc 540
ttccagctcc atatgagaaa gccatgtgca ctctgagacc cacctacccc acttcaccca 600
gccccttacc ttgagctcct ctatagtagg ttgatgcaat gcatttgaac ctctcctgcc 660
cagcggtatc ccaactggaa ggaaggaaga gtgaagcaca ggtatgtatc ttggggggtg 720
tgggtgctgg ggagaaggga tagctggaag gggtgtggaa gcactcaca              769
```

<210> 321
<211> 690
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(690)
<223> n = A,T,C or G

<400> 321
```
tgggctgtgg gcggcacctg tgctctgcag gccagacagc gatagaagcc tttgtctgtg 60
cctactcccc cggaggcaac tgggaggtca acgggaagac aatcatcccc tataagaagg 120
gtgcctggtg ttcgctctgc acagccagtg tctcaggctg cttcaaagcc tgggaccatg 180
caggggggct ctgtgaggtc cccaggaatc cttgtcgcat gagctgccag aaccatggac 240
gtctcaacat cagcacctgc cactgccact gtcccctgc ctacacgggc agatactgcc 300
aagtcaggtg cagcctgcag tgtgtgcacg gccggttccg ggaggaggag tgctcgtgcg 360
tctgtgacat cggctacggg ggagcccagt gtgccaccaa ggtgcatttt cccttccaca 420
cctgtgacct gaggatcgac ggagactgct tcatggtgtc ttcagaggca gacacctatt 480
acagaagcca ggatgaaatg tcagaggaat ggcgcggtgc tggcccagat caagagccag 540
aaagtgcagg acatcctcgc cttctatctg ggccgcctgg agaccaccaa cgaggtgact 600
gacagtgact ttgagaccag gaacttctgg atngggctca cctacaagac cgccaaggac 660
tccttncgct gggccacagg ggagcaccag                                    690
```

<210> 322
<211> 104
<212> DNA
<213> Homo sapiens

<400> 322
```
gtcgcaagcc ggagcaccac catgtagcct ttcccgaagt accggacctt ctcctcctcc 60
acgctcacat cacggacatc atggagcagg accaccacct ggtc               104
```

<210> 323
<211> 118
<212> DNA
<213> Homo sapiens

<400> 323
```
gggccctggg cgcttccaaa tgacccagga ggtggtctgc gacgaatgcc ctaatgtcaa 60
actagtgaat gaagaacgaa cactggaagt agaaatagag cctggggtga gagacgga  118
```

```
<210> 324
<211> 354
<212> DNA
<213> Homo sapiens

<400> 324
tgctctccgg gagcttgaag aagaaactgg ctacaaaggg gacattgccg aatgttctcc 60
agcggtctgt atggacccag gcttgtcaaa ctgtactata cacatcgtga cagtcaccat 120
taacggagat gatgccgaaa acgcaaggcc gaagccaaag ccagggatg gagagtttgt 180
ggaagtcatt tctttaccca agaatgacct gctgcagaga cttgatgctc tggtagctga 240
agaacatctc acagtggacg ccagggtcta ttcctacgct ctagcgctga aacatgcaaa 300
tgcaaagcca tttgaagtgc ccttcttgaa attttaagcc caaatatgac actg      354

<210> 325
<211> 642
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(642)
<223> n = A,T,C or G

<400> 325
ncatgcttga atgggctcct ggtgagagat tgcccctgg tggtgaaaca atcgtgtctg 60
cccactgata ccaagaccaa tgaaagagac acagttaagc agcaatccat ctcatttcca 120
ggcacttcaa taggtcgctg attggtcctt gcaccagcag tggtagtcgt acctatttca 180
gagaggtctg aaattcaggt tcttagtttg ccaggacag gccctacctt atattttttt 240
ccatcttcat catccacttc tgcttacagt ttgctgctta caataactta atgatggatt 300
gagttatctg cgtggtctct agccatctgg gcagtgtggt tctgtctaac caaagggcat 360
tggcctcaaa ccctgcattt ggtttagggg ctaacagagc tcctcagata atcttcacac 420
acatgtaact gctggagatc ttattctatt atgaataaga aacgagaagt tttccaaag 480
tgttagtcag gatctgaagg ctgtcattca gataacccag ctttccttt tggcttttag 540
cccattcaga ctttgccaga gtcaagccaa ggattgcttt tttgctacag ttttctgcca 600
aatggcctag ttcctgagta cctggaaacc acagagaaag ag           642

<210> 326
<211> 455
<212> DNA
<213> Homo sapiens

<400> 326
tccgtgagga tgagcttcga gtccttcacc aggcactgca ggggcacagt cacgtcaatc 60
accttcacct tctcgctctt cctgctcttg tcattgacaa acttcccgta ccaggcattg 120
acgatgatga ggcccattct ggactcttct gcctcaatta tccttcggac agattcctgc 180
atcagccgga cagcggactc cgcctcttgc ttcttctgca gcacatcggt ggcggcgctt 240
tccctctgct tctccaattc cttctctttc tgagccctga ggtatggttt gatgatcaga 300
cggtgcatgc caaagtagac cactagaggc cccacggtgg catagaacat ggcgctgggc 360
agaagctggt ccgtcaagtg aataggaag aagtatgtct gactggcccct gttgagcttg 420
actttgagag aaacgccctg tggaactcca acgct                  455

<210> 327
<211> 321
<212> DNA
```

<210> Homo sapiens

<400> 327
ttcactgtga actcgcagtc ctcgatgaac tcgcacagat gtgacagccc tgtctccttg 60
ctctctgagt tctcttcaat gatgctgatg atgcagtcca cgatagcgcg cttatactca 120
aagccaccct cttcccgcag catggtgaac aggaagttca taaggacggc gtgtttgcga 180
ggatatttct gacacagggc actgatggcc tggacaacca ccaccttgaa ttcatccgag 240
atttctgaca tgaaggagga gatctgcttc atgaggcggt cgatgctgct ctcgctgccc 300
gtcttaagga gggtggtgat g   321

<210> 328
<211> 476
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(476)
<223> n = A,T,C or G

<400> 328
tgcaggaggg gccatggggg ctgtgaatgg gatgcagccc catggtgtcc ctgataaatc 60
cagtgtgcag tctgatgaag tctgggtggg tgtggtctac gggctggcag ctaccatgat 120
ccaagaggta atgcactcct tttcccatct ctccaccatc tgtatcctgg ccmagaaaaa 180
cttcccttca aaccaaccaa aatttccttt caaaggcata acccaaatgc catccttggt 240
ccggtctaat aaagcctccc ccattttccc cctggtatgc attcccaggc tccctggcct 300
tncagggctt nctgtctgtg ggtcatagtt tatctcctcc cacttgctgg gagctccttg 360
aaggcaaaga ctctactgcc tccatctatc cagtggaagt ggctcttcag agggtgccaa 420
gttagtatgt atgactgtca tctctcccaa cagggcctga cttggsaggg cttcca   476

<210> 329
<211> 340
<212> DNA
<213> Homo sapiens

<400> 329
cgagggagat tgccagcacc ctgatggaga gtgagatgat cgagatcttg tcagtgctag 60
ctaagggtga ccacagccct gtcacaaggg ctgctgcagc ctgcctggac aaagcagtgg 120
aatatgggct tatccaaccc aaccaagatg gagagtgagg gggttgtccc tgggcccaag 180
gctcatcac acgctaccta ttgtggcacg gagagtaagg acggaagcag ctttggctgg 240
tggtggctgg catgcccaat actcttgccc atcctcgctt gctgccctag gatgtcctct 300
gttctgagtc agcggcacg ttcagtcaca cagccctgct   340

<210> 330
<211> 277
<212> DNA
<213> Homo sapiens

<400> 330
tgtcaccatc acattggtgc caaataccca gaagacatcg tagatgaaga gtccgcccag 60
caggatgcag ccagtgctga cattgttgag gtgcaggagc tctactccat taagggagaa 120
ggccaggcca aaaaggttgt tggcaatcca gtgcttcctc agcaggtacc agacgccaac 180
gatgctgctc aggcccaggc acaccagtc cttggtgtca aattcataat tgatgatctc 240
ctccttgttt tcccagaacc ctgtgtgaag agcagac   277

```
<210> 331
<211> 136
<212> DNA
<213> Homo sapiens

<400> 331
ttgcttccca cctcctttct ctgtcctctc ctgaggttct gccttacaat ggggacactg 60
atacaaacca cacacacaat gaggatgaaa acagataaca ggtaaaatga cctcacctgc 120
ccgggcggcc gctcga                                                136

<210> 332
<211> 184
<212> DNA
<213> Homo sapiens

<400> 332
ttgtgagata aacgcagata ctgcaatgca ttaaaacgct tgaaatactc atcaggatg 60
ttgctgatct tattgttgtc taagtagaga gttagaagag agacagggag accagaaggc 120
agtctggcta tctgattgaa gctcaagtca aggtattcga gtgatttaag acctttaaaa 180
gcag                                                             184

<210> 333
<211> 384
<212> DNA
<213> Homo sapiens

<400> 333
cggaaaactt cgaggaattg ctcaaagtgc tgggggtgaa tgtgatgctg aggaagattg 60
ctgtggctgc agcgtccaag ccagcagtgg agatcaaaca ggagggagac actttctaca 120
tcaaaacctc caccaccgtg cgcaccacag agattaactt caaggttggg gaggagtttg 180
aggagcagac tgtggatggg aggccctgta agagcctggt gaaatgggag agtgagaata 240
aaatggtctg tgagcagaag ctcctgaagg gagagggccc caagacctcg tggaccagag 300
aactgaccaa cgatgggcaa ctgatcctga ccatgacggc ggatgacgtt gtgtgcacca 360
gggtctacgt ccgagagtga gcgg                                       384

<210> 334
<211> 169
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(169)
<223> n = A,T,C or G

<400> 334
cnacaaacag agcagacacc ctggatccgg tcctgctact ggccaggacg gctggaccgt 60
aaaattgaat ttccacttcc tgaccgccgc cagaagagat tgatttcctc cactatcact 120
agcaagatga acctctctga ggaggttgac ttggaagact atgtngccc              169

<210> 335
<211> 185
<212> DNA
<213> Homo sapiens
```

```
<400> 335
ccaggtttgc agcccaggct gcacatcagg ggactgcctc gcaatacttc atgctgttgc 60
tgctgactga tggtgctgtg acggatgtgg aagccacacg tgaggctgtg gtgcgtgcct 120
cgaacctgcc catgtcagtg atcattgtgg gtgtgggtgg tgctgacttt gaggccatgg 180
agcag                                                                185

<210> 336
<211> 358
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(358)
<223> n = A,T,C or G

<400> 336
ctgcccctgc cttacggcgg ccaganacac acccaggatg gcattggccc caaacttgga 60
tttgttctca gtcccatcca actccagcat caggttgtcc agtttctctt gctccaccac 120
agagagacct gagctgatga gggctggcgc gatggtggag ttgatgtggt ccactgcctt 180
caggacacct ttgcctaagt aacgctgttt gtctccatcc ctcagctcca gggcctcata 240
gatgcccgta gaggctccac tgggcactgc agcccggaaa agacctttgg cagtatagag 300
atccacctcc actgtggggt tcccgcggga gtccaggatc tcccgggccc agatcttc     358

<210> 337
<211> 271
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(271)
<223> n = A,T,C or G

<400> 337
cacaaagcca ccagccnggg aaatcagaat ttacttgatg caactgactt gtaatagcca 60
gaaatcctgc ccagcatggg attcagaacc tggtctgcaa ccaaatccac cgtcaaagtt 120
catacaggat aaaacaaatt caattgcctt ttccacatta atagcatcaa gcttccccaa 180
caaagccaaa gttgccaccg cacaaaaaga gaatcttgtg tcaatttctc cctactttat 240
aaaagtagat ttttcacatc ccatgaagca g                                  271

<210> 338
<211> 326
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(326)
<223> n = A,T,C or G

<400> 338
ctgtgctccc gactngnnca tctcaggtac caccgactgc actgggcggg gccctctggg 60
gggaaaggct ccacggggca gggatacatc tcgaggccag tcatcctctg gaggcagccc 120
aatcaggtca aagattttgc ccaactggtc ggcttcagag tttccacaga agagaggctt 180
```

```
tcgacgaaac atctctgcaa agatacagcc aacactccac atgtccacag gtgttgcata 240
tgtggactgc agaagaactt cgggagctcg gtaccagagt gtaacaacca cgggtgtaag 300
tgccatctgg tagctgtaga ttctgg                                       326
```

```
<210> 339
<211> 260
<212> DNA
<213> Homo sapiens
```

```
<220>
<221> misc_feature
<222> (1)...(260)
<223> n = A,T,C or G
```

```
<400> 339
ttcacctgag gactcatttc gtgccctttg ttgacttcaa gcaaagncct tcanggtctn 60
caaggacgnc acatttccac ttgcgaatgn nctcanggct catcttgaag aanaagnanc 120
ccaagtgctg gatcccagac tcggggtaa ccttgtgggt aagagctcat ccagtttatg 180
ctttaggacg tccanctact cggggcagct ggaagcctgc gtggatgcgg ccctgctgga 240
cctcggccgc gaccacgcta                                             260
```

```
<210> 340
<211> 220
<212> DNA
<213> Homo sapiens
```

```
<220>
<221> misc_feature
<222> (1)...(220)
<223> n = A,T,C or G
```

```
<400> 340
ctggaagccc ggctnggnct ggcagcggaa ggagccaggc aggttcacgc agcggtgctg 60
gcagtagcgg tagcggcact cgtctatgtc cacacactcg ggcccgatct tgcggtaacc 120
atcagggcag gtgcactgat aggagccagg caagttatgg cagtcctggc tgggcgaca 180
gtcgtgcagg gcctgggcac actcgtccac atccacacag                        220
```

```
<210> 341
<211> 384
<212> DNA
<213> Homo sapiens
```

```
<400> 341
ctgctaccag gggagcgaga gctgactatc ccagcctcgg ctaatgtatt ctacgccatg 60
gatggagctt cacacgattt cctcctgcgg cagcggcgaa ggtcctctac tgctacaccg 120
ggcgtcacca gtggcccgtc tgcctcagga actcctccga gtgaggagg aggggctcc 180
tttcccagga tcaaggccac agggaggaag attgcacggg cactgttctg aggaggaagc 240
cccgttggct tacagaagtc atggtgttca taccagatgt gggtagccat cctgaatggt 300
ggcaattata tcacattgag acagaaattc agaaagggag ccagccaccc tggggcagtg 360
aagtgccact ggtttaccag acag                                         384
```

```
<210> 342
<211> 245
<212> DNA
<213> Homo sapiens
```

<400> 342
ctggctaagc tcatcattgt tactggtggg caccatgtcc ttgaagcttc aggcaagcaa 60
tgtaaccaac aagaatgacc ccaagtccat caactctcga gtcttcattg gaaacctcaa 120
cacagctctg gtgaagaaat cagatgtgga gaccatcttc tctaagtatg gccgtgtggc 180
cggctgttct gtgcacaagg gcaatgcctt tgttcagtac tccaatgagc gccatgcccg 240
ggcag   245

<210> 343
<211> 611
<212> DNA
<213> Homo sapiens

<400> 343
ccaaaaaaat caagatttaa ttttttttatt tgcactgaaa aactaatcat aactgttaat 60
tctcagccat ctttgaagct tgaaagaaga gtctttggta tttgtaaac gttagcagac 120
tttcctgcca gtgtcagaaa atcctatttta tgaatcctgt cggtattcct tggtatctga 180
aaaaaatacc aaatagtacc atacatgagt tatttctaag tttgaaaaat aaaaagaaat 240
tgcatcacac taattacaaa atacaagttc tggaaaaaat attttcttc attttaaaac 300
ttttttttaac taataatggc tttgaaagaa gaggcttaat ttggggtgg taactaaaat 360
caaaagaaat gattgacttg agggtctctg tttggtaaga atacatcatt agcttaaata 420
agcagcagaa ggttagtttt aattatgtag cttctgttaa tattaagtgt tttttgtctg 480
ttttacctca atttgaacag ataagtttgc ctgcatgctg gacatgcctc agaaccatga 540
atagcccgta ctagatcttg ggaacatgga tcttagagtc ctttggaata agttcttata 600
taaataccc c   611

<210> 344
<211> 311
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(311)
<223> n = A,T,C or G

<400> 344
nctcgaaaaa gcccaagaca gcagaagcag acacctccag tgaactagca aagaaaagca 60
aagaagtatt cagaaaagag atgtcccagt tcatcgtcca gtgcctgaac ccttaccgga 120
aacctgactg caaagtggga agaattacca caactgaaga ctttaaacat ctggctcgca 180
agctgactca cggtgttatg aataaggagc tgaagtactg taagaatcct gaggacctgg 240
agtgcaatga gaatgtgaaa cacaaaacca aggantacat taanaagtac atgcannaan 300
tttggggctt g   311

<210> 345
<211> 201
<212> DNA
<213> Homo sapiens

<400> 345
cacacggtca tcccgactgc caacctggag gcccaggccc tgtggaagga gccgggcagc 60
aatgtcacca tgagtgtgga tgctgagtgt gtgcccatgg tcaggacct tctcaggtac 120
ttctactccc gaaggattga catcaccctg tcgtcagtca agtgcttcca caagctggcc 180
tctgcctatg gggccaggca g   201

```
<210> 346
<211> 370
<212> DNA
<213> Homo sapiens

<400> 346
ctgctccagg gcgtggtgtg ccttcgtggc ctctgcctcc tccgaggagc caggctgtgt 60
tctcttcaga atgttctgga gcagcagttt gaggcgggtg atgcgttgga agggcagaat 120
cagaaaggac ttgagggaaa ggcgctggca gacggggtcg ctctccagct tctccaagac 180
ctcccggaaa ttgctgttgc tattcatcag gctctggaag gtgcgttcct gataggtctg 240
gttggtgaca taaggcaggt agacccggcg gaagtctggg gcgtggttca ggactacgtc 300
acatacttgg aaggagaaga tattgttctc aaagttctct tccaggtctg aaaggaacgt 360
ggcgctgacg                                                        370

<210> 347
<211> 416
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(416)
<223> n = A,T,C or G

<400> 347
ctgttgtgct gtgtatggac gtgggcttta ccatgagtaa ctccattcct ggtatagaat 60
ccccatttga acaagcaaag aaggtgataa ccatgtttgt acagcgacag gtgtttgctg 120
agaacaagga tgagattgct ttagtcctgt ttggtacaga tggcactgac aatccccttt 180
ctggtgggga tcagtatcag aacatcacag tgcacagaca tctgatgcta ccagattttg 240
atttgctgga ggacattgaa agcaaaatcc aaccaggttc tcaacaggct gacttcctgg 300
atgcactaat cgtgagcatg gatgtgattc aacatgaaac aataggaaag aagtttggag 360
aagaggcata ttgaaatatt cactgacctc aagcagcccg attcagcaaa agtcan       416

<210> 348
<211> 351
<212> DNA
<213> Homo sapiens

<400> 348
gtacaggaga ggatggcagg tgcagagcgg gcactgagct ctgcaggtga aagggctcgg 60
cagttggatg ctctcctgga ggctctgaaa ttgaaacggg caggaaatag tctggcagcc 120
tctacagcag aagaaacggc aggcagtgcc cagggacgag caggagacag atgccttcct 180
cttgtctcaa ctgcaaagag gcgttccttc ctctttcact aatcctcctc agcacagacc 240
ctttacgggt gtcaggctgg gggacagtaa ggtctttccc ttcccacaag gccatatctc 300
aggctgtctc agtgggggga aaccttggac aatacccggg ctttcttggg c            351

<210> 349
<211> 207
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(207)
<223> n = A,T,C or G
```

```
<400> 349
nccgggacat ctccaccctc aacagtggca agaagagcct ggagactgaa cacaaggcct 60
tgaccagtga gattgcactg ctgcagtcca ggctgaagac agagggctct gatctgtgcg 120
acagagtgag cgaaatgcag aagctggatg cacaggtcaa ggagctggtg ctgaagtcgg 180
cggtggaggc tgagcgcctg gtggctg                                      207

<210> 350
<211> 323
<212> DNA
<213> Homo sapiens

<400> 350
ccatacaggg ctgttgccca ggccctagag gtcattcctc gtaccctgat ccagaactgt 60
ggggccagca ccatccgtct acttacctcc cttcgggcca agcacaccca ggagaactgt 120
gagacctggg gtgtaaatgg tgagacgggt actttggtgg acatgaagga actgggcata 180
tgggagccat tggctgtgaa gctgcagact tataagacag cagtggagac ggcagttctg 240
ctactgcgaa ttgatgacat cgtttcaggc cacgaaaaga aaggcgatga ccagagccgg 300
caaggcgggg ctcctgatgc tgg                                          323

<210> 351
<211> 353
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(353)
<223> n = A,T,C or G

<400> 351
cgccgcatcc cntggtccct tccantccct tttcctttnt cngggaacgt gtatgcggtt 60
tgtttttgtt ttgtagggtt tttttccttc tccacctctc cctgtctctt ttgctccatg 120
ttgtccgttt ctgtgggggtt aggtttatgt ttttaatcat ctgaggtcac gtctatttcc 180
tccggactcg cctgcttggt ggcgattctc caccggttaa tatggtgcgt cccttttttc 240
ttttgttgcg aatctgagcc ttcttcctcc agcttctgcc ttttgaactt tgttcttcgg 300
ttctgaaacc atacttttac ctgagtttcc gtgaggctga ggctgtgtgc caa         353

<210> 352
<211> 467
<212> DNA
<213> Homo sapiens

<400> 352
ctgcccacac tgatcacttg cgagatgtcc ttagggtaca agaacaggaa ttgaagtctg 60
aatttgagca gaacctgtct gagaaactct ctgaacaaga attacaattt cgtcgtctca 120
gtcaagagca agttgacaac tttactctgg atataaatac tgcctatgcc agactcagag 180
gaatcgaaca ggctgttcag agccatgcag ttgctgaaga ggaagccaga aaagcccacc 240
aactctggct ttcagtggag gcattaaagt acagcatgaa gacctcatct gcagaaacac 300
ctactatccc gctgggtagt gcagttgagg ccatcaaagc caactgttct gataatgaat 360
tcacccaagc tttaaccgca gctatccctc cagagtccct gacccgtggg gtgtacagtg 420
aagagaccct tagagcccgt ttctatgctg ttcaaaaact ggcccga              467

<210> 353
<211> 350
```

```
<212> DNA
<213> Homo sapiens

<400> 353
ctgctgcagc cacagtagtt cctcccatgg tgggtggccc tcctggtcct gctggcccag 60
gaaatctgtc cccaccagga acagcccctg gaaaacggcc ccgtcctcta ccaccttgtg 120
gaaatgctgc acgggaactg cctcctggag gaccagcttt accttcccca gacatttgtc 180
ctgattgtgt agttttcctg gactgcattt caaattgact caggaactgt ttattgcatg 240
gagttacaac aggattctga ccatgaagtt ctcttttagg taacagatcc attaactttt 300
ttgaagatgc ttcagatcca acaccaacaa gggcaaaccc ctttgactgg           350


<210> 354
<211> 351
<212> DNA
<213> Homo sapiens

<400> 354
atttagatga gatctgaggc atggagacat ggagacagta tacagactcc tagatttaag 60
ttttaggttt tttgcttttc taatcaccaa ttcttatata caatgtatat tttagactcg 120
agcagatgat catcttcatc ttaagtcatt ccttttgact gagtatggca ggattagagg 180
gaatggcagt atagatcaat gtctttttct gtaaagtata ggaaaaacca gagaggaaaa 240
aaagagctga caattggaag gtagtagaaa attgacgata atttcttctt aacaaataat 300
agttgtatat acaaggaggc tagtcaacca gattttattt gttgagggcg a          351


<210> 355
<211> 308
<212> DNA
<213> Homo sapiens

<400> 355
ttttggcgca agttttacag attttattaa agtcgaagct attggtcttg gaagatgaaa 60
atgcaaatgt tgatgaggtg gaattgaagc cagatacctt aataaaatta tatcttggtt 120
ataaaaataa gaaattaagg gttaacatca atgtgccaat gaaaaccgaa cagaagcagg 180
aacaagaaac cacacacaaa aacatcgagg aagaccgcaa actactgatt caggcggcca 240
tcgtgagaat catgaagatg aggaaggttc tgaaacacca gcagttactt ggcgaggtcc 300
tcactcag                                                          308


<210> 356
<211> 207
<212> DNA
<213> Homo sapiens

<400> 356
ctgtcccaag tgctcccaga aggcaggatt ctgaagacca ctccagcgat atgttcaact 60
atgaagaata ctgcaccgcc aacgcagtca ctgggccttg ccgtgcatcc ttcccacgct 120
ggtactttga cgtggagagg aactcctgca ataacttcat ctatggaggc tgccggggca 180
ataagaacag ctaccgctct gaggagg                                     207


<210> 357
<211> 188
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
```

```
<222> (1)...(188)
<223> n = A,T,C or G

<400> 357
tcgaccacgc cctcgtagcg catgngctnc aggacgatgc tcagagtgat gaacacccg 60
gtgcggccca cgccagcact gcagtgcacc gtgataggcc catcctgtcc aaactgctcc 120
ttggtcttat gcacctgccc gatgaagtca atgaatccct cgcctgtctt gggcacgccc 180
tgctctgg                                                          188

<210> 358
<211> 291
<212> DNA
<213> Homo sapiens

<400> 358
ctgggagcat cggcaagcta ctgccttaaa atccgatctc cccgagtgca caatttctgt 60
cccttttaag ggttcacaac actaaagatt tcacatgaaa gggttgtgat tgatttgagc 120
aggcaggcgg tacgtgacag gggctgcatg caccgtggt cagagagaaa cagaacaggg 180
caggaatt cacaatgttc ttctatacaa tggctggaat ctatgaataa catcagtttc 240
taagttatgg gttgatttt aactactggg tttaggccag gcaggcccag g            291

<210> 359
<211> 117
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(117)
<223> n = A,T,C or G

<400> 359
gccaccacac tccagcctgg gcaatacagc aagactgtct caaaaaaaaa aaaaaaaaa 60
cccaaaaaaa ctcaaaaang taatgaatga tacccaangn gccttttcta gaaaaag    117

<210> 360
<211> 394
<212> DNA
<213> Homo sapiens

<400> 360
ctgttcctct ggggtggtcc agttctagag tgggagaaag ggagtcaggc gcattgggaa 60
tcgtggttcc agtctggttg cagaatctgc acatttgcca agaaattttc cctgtttgga 120
aagtttgccc cagctttccc gggcacacca ccttttgtcc caagtgtctg ccggtcgacc 180
aatctgcctg ccacacattg accaagccag accggttca cccagctcga ggatcccagg 240
ttgaagagtg gcccttgag gccctggaaa gaccaatcac tggacttctt cccttgagag 300
tcagaggtca cccgtgattc tgcctgcacc ttatcattga tctgcagtga tttctgcaaa 360
tcaagagaaa ctctgcaggg cactcccctg tttc                             394

<210> 361
<211> 394
<212> DNA
<213> Homo sapiens

<220>
```

<221> misc_feature
<222> (1)...(394)
<223> n = A,T,C or G

<400> 361
ctgggcggat agcaccgggc atattttntt natggatgag gtctggcacc ctgagcagtc 60
cagcgaggac ttggtcttag ttgagcaatt tggctaggag gatagtatgc agcacggttc 120
tgagtctgtg ggatagctgc catgaagtaa cctgaaggag gtgctggctg gtaggggttg 180
attacagggt tgggaacagc tcgtacactt gccattctct gcatatactg gttagtgagg 240
tgagcctggc gctcttcttt gcgctgagct aaagctacat acaatggctt tgtggacctc 300
ggccgcgacc acgctaagcc gaattccagc acactggcgg ccgttactag tggatccgag 360
ctcggtacca agcttggcgt aatcatggtc atag   394

<210> 362
<211> 268
<212> DNA
<213> Homo sapiens

<400> 362
ctgcgcgtgg accagtcagc ttccgggtgt gactggagca gggcttgtcg tcttcttcag 60
agtcactttg cagggggttgg tgaagctgct cccatccatg tacagctccc agtctactga 120
tgtttaagga tggtctcggt ggttaggccc actagaataa actgagtcca atacctctac 180
acagttatgt ttaactgggc tctctgacac cgggaggaag gtggcggggt ttaggtgttg 240
caaacttcaa tggttatgcg gggatgtt   268

<210> 363
<211> 323
<212> DNA
<213> Homo sapiens

<400> 363
ccttgacctt ttcagcaagt gggaaggtgt aatccgtctc cacagacaag gccaggactc 60
gtttgtaccc gttgatgata gaatggggta ctgatgcaac agttgggtag ccaatctgca 120
gacagacact ggcaacattg cggacaccct ccaggaagcg agaatgcaga gtttcctctg 180
tgatatcaag cacttcaggg ttgtagatgc tgccattgtc gaacacctgc tggatgacca 240
gcccaaagga gaaggggggag atgttgagca tgttcagcag cgtggcttcg ctggctccca 300
ctttgtctcc agtcttgatc aga   323

<210> 364
<211> 393
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(393)
<223> n = A,T,C or G

<400> 364
ccaagctctc catcgtcccc gtgcgcagng gctactgggg gaacaagatc ggcaagcccc 60
acactgtccc ttgcaaggtg acaggccgct gcggctctgt gctggtacgc ctcatcactg 120
cacccagggg cactggcatc gtctccgcac ctgtgcctaa gaagctgctc atgatggctg 180
gcatcgatga ctgctacacc tcagcccggg gctgcactgc cacctgggc aacttcgcca 240
aggccacctt tgatgccatt tctaagacct acagctacct gacccccgac ctctggaagg 300
agactgtatt caccaagtct ccctatcagg agttcactga ccacctcgtc aagacccaca 360

ccagagtctc cgtgcagcgg actcaggctc cag   393

```
<210> 365
<211> 371
<212> DNA
<213> Homo sapiens

<400> 365
cctcctcaga gcggtagctg ttcttattgc cccggcagcc tccatagatg aagttattgc 60
aggagttcct ctccacgtca aagtaccagc gtgggaagga tgcacggcaa ggcccagtga 120
ctgcgttggc ggtgcagtat tcttcatagt tgaacatatc gctggagtgg tcttcagaat 180
cctgccttct gggagcactt gggacagagg aatccgctgc attcctgctg gtggacctcg 240
gccgcgacca cgctaagccg aattccagca cactggcggc cgttactagt ggatccgagc 300
tcggtaccaa gcttggcgta atcatggtca tagctgtttc ctgtgtgaaa ttgttatccg 360
ctcacaattc c                                                            371

<210> 366
<211> 393
<212> DNA
<213> Homo sapiens

<400> 366
atttcttgcc agatggagc tctttggtga agactccttt cgggaaaagt tttttggctt 60
cttcttcagg gatggttgga aggaccatca cactatcccc atccttccaa tcaactgggg 120
tggcaaccct tttttctgct gtcagctgga gagagatgac taccctgaga atctcatcaa 180
agttcctgcc agtggtagct gggtagagga tagacagctt cagcttctta tcaggaccaa 240
aaacaaacac cacacgagct gccacaggca tgcccttttc atccttctct gctggatcca 300
gcatgcccaa caggatggca agctcccgat tcctatcatc gatgatggga aaaggtaact 360
tttctgtggg ctcttcacaa ttgtaagcat tga                                    393

<210> 367
<211> 327
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(327)
<223> n = A,T,C or G

<400> 367
ccagctctgt ctcatacttg actctaaagt cttnagcagc aagacgggca ttgnnaatct 60
gcagaacgat gcgggcattg tccacagtat ttgcgaagat ctgagccctc aggtcctcga 120
tgatcttgaa gtaatggctc cagtctctga cctgggtcc cttcttctcc aagtgctccc 180
ggattttgct ctccagcctc cggttctcgg tctccaggct cctcactctg tccaggtaag 240
aggccaggcg gtcgttcagg ctttgcatgg tctccttctc gttctggatg cctcccattc 300
ctgccagacc cccggctatc ccggtgg                                            327

<210> 368
<211> 306
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
```

```
<222> (1)...(306)
<223> n = A,T,C or G

<400> 368
ctggagaagg acttcagcag tttnaagaag tactgccaag tcatccgtgt cattgcccac 60
acccagatgc gcctgcttcc tctgcgccag aagaaggccc acntgatgga gatccaggtg 120
aacggaggca ctgtggccga gaagctggac tgggcccgcg agaggcttga gcagcaggta 180
cctgtgaacc aagtgtttgg gcaggatgag atgatcgacg tcatcggggt gaccaagggc 240
aaaggctaca aaggggtcac cagtcgttgg cacaccaaga agctgccccg caagacccac 300
cgagga                                                             306

<210> 369
<211> 394
<212> DNA
<213> Homo sapiens

<400> 369
tcgacccaca ccggaacacg gagagctggg ccagcattgg cacttgatag gatttcccgt 60
cggctgccac gaaagtgcgt ttctttgtgt tctcgggttg gaaccgtgat ttccacagac 120
ccttgaaata cactgcgttg acgaggacca gtctggtgag cacaccatca ataagatctg 180
gggacagcag attgtcaatc atatccctgg tttcatttct aacccatgca ttgatggaat 240
cacaggcaga ggctggatcc tcaaagttca cattccggac ctcacactgg aacacatctt 300
tgttccttgt aacaaaaggc acttcaattt cagaggcatt cttaacaaac acggcgttag 360
ccactgtcac aatgtcttta ttcttcttgg agac                              394

<210> 370
<211> 653
<212> DNA
<213> Homo sapiens

<400> 370
ccaccacacc caattccttg ctggtatcat ggcagccgcc acgtgccagg attaccggct 60
acatcatcaa gtatgagaag cctgggtctc ctcccagaga agtggtccct cggccccgcc 120
ctggtgtcac agaggctact attactggcc tggaaccggg aaccgaatat acaatttatg 180
tcattgccct gaagaataat cagaagagcg agcccctgat tggaaggaaa aagacagacg 240
agcttcccca actggtaacc cttccacacc ccaatcttca tggaccagag atcttggatg 300
ttccttccac agttcaaaag accccttttcg tcacccaccc tgggtatgac actggaaatg 360
gtattcagct tcctggcact tctggtcagc aacccagtgt tgggcaacaa atgatctttg 420
aggaacatgg ttttaggcgg accacaccgc ctacaacggc caccccccata aggcataggc 480
caagaccata cccgccgaat gtaggacaag aagctctctc tcagacaacc atctcatggg 540
ccccattcca ggacacttct gagtacatca tttcatgtca tcctgttggc actgatgaag 600
aacccttaca gttcagggtt cctggaactt ctaccagtgc cactctgaca gga         653

<210> 371
<211> 268
<212> DNA
<213> Homo sapiens

<400> 371
ctgcccagcc cccattggcg agtttgagaa ggtgtgcagc aatgacaaca agaccttcga 60
ctcttcctgc cacttcttttg ccacaaagtg cacctggag ggcaccaaga agggccacaa 120
gctccacctg gactacatcg ggccttgcaa atacatcccc ccttgcctgg actctgagct 180
gaccgaattc cccctgcgca tgcgggactg gctcaagaac gtcctggtca ccctgtatga 240
gagggatgag gacaacaacc ttctgact                                     268
```

```
<210> 372
<211> 392
<212> DNA
<213> Homo sapiens

<400> 372
gctggtgccc ctggtgaacg tggacctcct ggattggcag gggccccagg acttagaggt 60
ggaactggtc ccctggtcc cgaaggagga aagggtgctg ctggtcctcc tgggccacct 120
ggtgctgctg gtactcctgg tctgcaagga atgcctggag aaagaggagg tcttggaagt 180
cctggtccaa agggtgacaa gggtgaacca ggcggtccag gtgctgatgg tgtcccaggg 240
aaagatggcc caaggggtcc tactggtcct attggtcctc ctggcccagc tggccagcct 300
ggagataagg gtgaaggtgg tgcccccgga cttccaggta tagctggacc tcgtggtagc 360
cctggtgaga gaggtgaaac ctcggccgcg ac                                392

<210> 373
<211> 388
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(388)
<223> n = A,T,C or G

<400> 373
ccaagcgctc agatcggcaa ggggcaccan ttttgatctg cccagtgcac agccccacaa 60
ccaggtcagc gatgaaggta tcttcagtct cccccgaacg atgagacacc atgacgcccc 120
aaccattggc ctgggccagc ttgcacgcct gaagagactc ggtcacggag ccaatctggt 180
tgactttgag caggaggcag ttgcaggact tctcgttcac ggccttggcg atcctctttg 240
ggttggtcac tgtgagatca tcccccacta cctggattcc tgcactggct gtgaacttct 300
gccaagctcc ccagtcatcc tggtcaaagg gatcttcgat agacaccact gggtagtcct 360
tgatgaagga cttgtacagg tcagccag                                     388

<210> 374
<211> 393
<212> DNA
<213> Homo sapiens

<400> 374
ctgacgaccg cgtgaacccc tgcattgggg gtgtcatcct cttccatgag acactctacc 60
agaaggcgga tgatggcgt cccttccccc aagttatcaa atccaagggc ggtgttgtgg 120
gcatcaaggt agacaagggc gtggtccccc tggcagggac aaatggcgag actaccaccc 180
aagggttgga tgggctgtct gagcgctgtg cccagtacaa gaaggacgga gctgacttcg 240
ccaagtcgcg ttgtgtgctg aagattgggg aacacacccc ctcagccctc gccatcatgg 300
aaaatgccaa tgttctggcc cgttatgcca gtatctgcca gcagaatggc attgtgccca 360
tcgtggagcc tgagatcctc cctgatgggg acc                               393

<210> 375
<211> 394
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(394)
```

<223> n = A,T,C or G

<400> 375
ccacaaatgg cgtggtccat gtcatcaccn ttnttctgca gcctccagcc aacagacctc 60
aggaaagacg ggatgaactt gcagactctg cgcttgagat cttcaaacaa gcatcagcgt 120
tttccagggc ttcccagagg tctgtgcgac tagccctgt ctatcaaaag ttattagaga 180
ggatgaagca ttagcttgaa gcactacagg aggaatgcac cacggcagct ctccgccaat 240
ttctctcaga tttccacaga gactgtttga atgttttcaa aaccaagtat cacactttaa 300
tgtacatggg ccgcaccata atgagatgtg agccttgtgc atgtgggggga ggagggagag 360
agatgtactt tttaaatcat gttccccta aaca 394

<210> 376
<211> 392
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(392)
<223> n = A,T,C or G

<400> 376
ctgcccagcc cccattggcg agtttgattn ggtgtgcagc aatgacaaca agaccttcga 60
ctcttcctgc cacttctttg ccacaaagtg caccctggag ggcaccaaga agggccacaa 120
gctccacctg gactacatcg ggccttgcaa atacatcccc ccttgcctgg actctgagct 180
gaccgaattc cccctgcgca tgcgggactg gctcaagaac gtcctggtca ccctgtatga 240
gagggatgag gacaacaacc ttctgactga gaagcagaag ctgcgggtga agaagatcca 300
tgagaatgag aagcgcctgg aggcaggaga ccaccccgtg gagctgctgg cccgggactt 360
cgagaagaac tataacatgt acatcttccc tg 392

<210> 377
<211> 292
<212> DNA
<213> Homo sapiens

<400> 377
caatgtttga tgcttaaccc ccccaatttc tgtgagatgg atggccagtg caagcgtgac 60
ttgaagtgtt gcatgggcat gtgtgggaaa tcctgcgttt cccctgtgaa agcttgattc 120
ctgccatatg gaggaggctc tggagtcctg ctctgtgtgg tccaggtcct ttccaccctg 180
agacttggct ccaccactga tatcctcctt tggggaaagg cttggcacac agcaggcttt 240
caagaagtgc cagttgatca atgaataaat aaacgagcct atttctcttt gc 292

<210> 378
<211> 395
<212> DNA
<213> Homo sapiens

<400> 378
ctgctgcttc agcgaagggt ttctggcata tccaatgata aggctgccaa agactgttcc 60
aataccagca ccagaaccag ccactcctac tgttgcagca cctgcaccaa taaatttggc 120
agcagtatca atgtctctgc tgattgcact ggtctgaaac tccctttgga ttagctgaga 180
cacaccattc tgggccctga ttttcctaag atagaactcc aactctttgc cctctagcac 240
atagccatct gctcggccac actgtcccgg ccttgaagcg atgcacgcaa gaagcttgcc 300
ctgctggaac tgctcctcca ggagactgct gattttggca ttcttttttcc tttcatcata 360
tttcttctga attttttaga tcgtttttttg tttaa 395

```
<210> 379
<211> 223
<212> DNA
<213> Homo sapiens

<400> 379
ccagatgaaa tgctgccgca atggctgtgg gaaggtgtcc tgtgtcactc ccaatttctg 60
agctccagcc accaccaggc tgagcagtga ggagagaaag tttctgcctg gccctgcatc 120
tggttccagc ccacctgccc tccccttttt cgggactctg tattccctct tgggctgacc 180
acagcttctc cctttcccaa ccaataaagt aaccactttc agc            223

<210> 380
<211> 317
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(317)
<223> n = A,T,C or G

<400> 380
tcgaccacag tattccaacc ctcctgtgcn tngagaagtg atggagggtg ctgacaacca 60
gggtgcagga gaacaaggta gaccagtgag gcagaatatg tatcggggat atagaccacg 120
attccgcagg ggccctcctc gccaaagaca gcctagagag gacggcaatg aagaagataa 180
agaaaatcaa ggagatgaga cccaaggtca gcagccacct caacgtcggt accgccgcaa 240
cttcaattac cgacgcagac gcccagaaaa ccctaaacca caagatggca aagagacaaa 300
agcagccgat ccaccag                                          317

<210> 381
<211> 392
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(392)
<223> n = A,T,C or G

<400> 381
cctgaaggaa gagctggcct acctgaatnn naaccatgag gaggaaatca gtacgctgag 60
gggccaagtg ggaggccagg tcagtgtgga ggtggattcc gctccgggca ccgatctcgc 120
caagatcctg agtgacatgc gaagccaata tgaggtcatg gccgagcaga accggaagga 180
tgctgaagcc tggttcacca gccggactga agaattgaac cgggaggtcg ctggccacac 240
ggagcagctc cagatgagca ggtccgaggt tactgacctg cggcgcaccc ttcagggtct 300
tgagattgag ctgcagtcac agacctcggc cgcgaccacg ctaagccgaa ttccagcaca 360
ctggcggccg ttactagtgg atccgagctc gg                        392

<210> 382
<211> 234
<212> DNA
<213> Homo sapiens

<400> 382
```

```
cctcgatgtc taaatgagcg tggtaaagga tggtgcctgc tgggtctcg tagataccctc 60
gggacttcat tccaatgaag cggttctcca cgatgtcaat acggcccacg ccatgcttgc 120
ccgcgacttc gttcaggtac atgaagagct ccaaggaggt ctggtgggtg gtgccatcct 180
tgacgttggt caccttcaca gggacccctt ttttgaactc catctccaga atgt        234
```

```
<210> 383
<211> 396
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (1)...(396)
<223> n = A,T,C or G
```

```
<400> 383
ccttgacctt ttcagcaagt gggaaggtgt tttccgtctc cacagacaag gccaggactc 60
gtttgnaccc gttgatgata gaatgggggta ctgatgcaac agttgggtag ccaatctgca 120
gacagacact ggcaacattg cggacaccca ggatttcaat ggtgccctg gagatttttag 180
tggtgatacc taaagcctgg aaaaaggagg tcttctcggg cccgagacca gtgttctggg 240
ctggcacagt gacttcacat ggggcaatgg caccagcacg ggcagcagac ctgcccgggc 300
ggccgctcga aagccgaatt ccagcacact ggcggccgtt actagtggat ccgagctcgg 360
taccaagctt ggcgtaatca tggtcatagc tgtttc                            396
```

```
<210> 384
<211> 396
<212> DNA
<213> Homo sapiens
```

```
<400> 384
gctgaatagg cacagagggc acctgtacac cttcagacca gtctgcaacc tcaggctgag 60
tagcagtgaa ctcaggagcg ggagcagtcc attcaccctg aaattcctcc ttggtcactg 120
ccttctcagc agcagcctgc tcttcttttt caatctcttc aggatctctg tagaagtaca 180
gatcaggcat gacctcccat gggtgttcac gggaaatggt gccacgcatg cgcagaactt 240
cccgagccag catccaccac atcaaaccca ctgagtgagc tcccttgttg ttgcatggga 300
tggcaatgtc cacatagcgc agaggagaat ctgtgttaca cagccaatg gtaggtaggt 360
taacataaga tgcctccgtg agaggctggt ggtcac                            396
```

```
<210> 385
<211> 2943
<212> DNA
<213> Homo sapiens
```

```
<400> 385
cagccaccgg agtggatgcc atctgcaccc accgccctga ccccacaggc cctgggctgg 60
acagagagca gctgtatttg gagctgagcc agctgaccca cagcatcact gagctgggcc 120
cctacaccct ggacaggac agtctctatg tcaatggttt cacacagcgg agctctgtgc 180
ccaccactag cattcctggg accccacag tggacctggg aacatctggg actccagttt 240
ctaaacctgt tccctcggct gccagccctc tcctggtgct attcactctc aacttccacca 300
tcaccaacct gcggtatgag gagaacatgc agcaccctgg ctccaggaag ttcaacacca 360
cggagagggt ccttcagggc ctggtccctg ttcaagagca ccagtgttgg ccctctgtac 420
tctggctgca gactgacttt gctcaggcct gaaaacgatg ggacagccac tggagtggat 480
gccatctgca cccaccaccc tgacccaaa agccctaggc tggacagaga gcagctgtat 540
tgggagctga gccagctgac ccacaatatc actgagctgg gccctatgc cctggacaac 600
gacagcctct ttgtcaatgg tttcactcat cggagctctg tgtccaccac cagcactcct 660
```

```
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gctgccagcc atctcctgat actattcacc ctcaacttca ccatcactaa cctgcggtat 780
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cggtgcctgg ggtgcctttc ccccagccag ggtccaaaga agcttggctg gggcagaaat 2880
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aaa                                                              2943
```

```
<210> 386
<211> 2608
<212> DNA
<213> Homo sapiens
```

```
<400> 386
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aagccctagg ctggacagag agcagctgta ttggagctg agccagctga cccacaatat 180
cactgagctg ggcccctatg ccctggacaa cgacagcctc tttgtcaatg gtttcactca 240
tcggagctct gtgtccacca ccagcactcc tgggaccccc acagtgtatc tgggagcatc 300
taagactcca gcctcgatat ttggcccttc agctgccagc catctcctga ctactattcac 360
cctcaacttc accatcacta acctgcggta tgaggagaac atgtggcctg gctccaggaa 420
gttcaacact acagagaggg tccttcaggg cctgctaagg cccttgttca agaacaccag 480
tgttggccct ctgtactctg gctgcaggct gaccttgctc aggccagaga aagatgggga 540
```

```
agccaccgga gtggatgcca tctgcaccca ccgccctgac cccacaggcc ctgggctgga 600
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ctacacactg gacagggaca gtctctatgt caatggtttc acccatcgga gctctgtacc 720
caccaccagc accggggtgg tcagcgagga gccattcaca ctgaacttca ccatcaacaa 780
cctgcgctac atggcggaca tgggccaacc cggctccctc aagttcaaca tcacagacaa 840
cgtcatgaag cacctgctca gtcctttgtt ccagaggagc agcctgggtg cacggtacac 900
aggctgcagg gtcatcgcac taaggtctgt gaagaacggt gctgagacac gggtggacct 960
cctctgcacc tacctgcagc ccctcagcgg cccaggtctg cctatcaagc aggtgttcca 1020
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cagcctctac cttaacggtt acaatgaacc tggtccagat gagcctccta caactcccaa 1140
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gaagaccctc acactcaact tcaccatctc caatctccag tattcaccag atatgggcaa 1260
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gaaggatggg gcagccactg tgtgtggacac cacctgcacc taccaccctg accctgtggg 1440
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ccaactgggc ttctatgtcc tggacaggga tagcctcttc atcaatggct atgcacccca 1560
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cttctcgcca ctggctcgga gagtagacag agttgccatc tatgaggaat ttctgcggat 2220
gacccggaat ggtacccagc tgcagaactt caccctggac aggagcagtg tccttgtgga 2280
tgggtatttt cccaacagaa atgagccctt aactgggaat tctgaccttc ccttctgggc 2340
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aggctactac cagtcacacc tagacctgga ggatctgcaa tgactggaac ttgccggtgc 2520
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```

<210> 387
<211> 1761
<212> DNA
<213> Homo sapiens

<400> 387

```
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agcctgggtg cacggtacac aggctgcagg gtcatcgcac taaggtctgt gaagaacggt 180
gctgagacac gggtggacct cctctgcagg taggtgcaga ggaggtccac ggcatcaccc 240
ggctgggccc ctactctctg gacaaagaca gcctctacct taacgctccc aagccagcca 300
ccacattcct gcctcctctg tcagaagcca acagccat ggggtaccac ctgaagaccc 360
tcacactcaa cttcaccatc tccaatctcc agtattcacc agatatgggc aagggctcag 420
ctacattcaa ctccaccgag ggggtccttc agcacctgct cagacccttg ttccagaaga 480
gcagcatggg ccccttctac ttgggttgcc aactgatctc cctcaggcct gagaaggatg 540
gggcagccac tgtgtggac accacctgca cctaccaccc tgaccctgtg ggccccgggc 600
tggacataca gcagctttac tgggagctga gtcagctgac ccatggtgtc acccaactgg 660
gcttctatgt cctggacagg gatagcctct tcatcaatgg ctatgcaccc cagaatttat 720
caatccgggg cgagtaccag ataaatttcc acattgtcaa ctggaacctc agtaatccag 780
```

```
accccacatc ctcagagtac atcaccctgc tgagggacat ccaggacaag gtcaccacac 840
tctacaaagg cagtcaacta catgacacat tccgcttctg cctggtcacc aacttgacga 900
tggactccgt gttggtcact gtcaaggcat tgttctcctc caatttggac cccagcctgg 960
tggagcaagt ctttctagat aagaccctga atgcctcatt ccattggctg ggctccacct 1020
accagttggt ggacatccat gtgacagaaa tggagtcatc agtttatcaa ccaacaagca 1080
gctccagcac ccagcacttc tacctgaatt tcaccatcac caacctacca tattcccagg 1140
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tcaaccaact cttccgaaac agcagcatca agagttattt ttctgactgt caagtttcaa 1260
cattcaggtc tgtccccaac aggcaccaca ccggggtgga ctccctgtgt aacttctcgc 1320
cactggctcg gagagtagac agagttgcca tctatgagga atttctgcgg atgacccgga 1380
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ttcccaacag aaatgagccc ttaactggga attctgacct tcccttctgg gctgtcatcc 1500
tcatcggctt ggcaggactc ctgggactca tcacatgcct gatctgcggt gtcctggtga 1560
ccacccgccg gcggaagaag gaaggagaat acaacgtcca gcaacagtgc ccaggctact 1620
accagtcaca cctagacctg gaggatctgc aatgactgga acttgccggt gcctggggtg 1680
cctttccccc agccagggtc caaagaagct tggctggggc agaaataaac catattggtc 1740
ggacacaaaa aaaaaaaaaa a                                          1761
```

```
<210> 388
<211> 772
<212> PRT
<213> Homo sapiens
```

```
<400> 388
Met Ser Met Val Ser His Ser Gly Ala Leu Cys Pro Pro Leu Ala Phe
                  5                  10                  15

Leu Gly Pro Pro Gln Trp Thr Trp Glu His Leu Gly Leu Gln Phe Leu
              20                  25                  30

Asn Leu Val Pro Arg Leu Pro Ala Leu Ser Trp Cys Tyr Ser Leu Ser
          35                  40                  45

Thr Ser Pro Ser Pro Thr Cys Gly Met Arg Arg Thr Cys Ser Thr Leu
      50                  55                  60

Ala Pro Gly Ser Ser Thr Pro Arg Arg Gly Ser Phe Arg Ala Trp Ser
65                  70                  75                  80

Leu Phe Lys Ser Thr Ser Val Gly Pro Leu Tyr Ser Gly Cys Arg Leu
                  85                  90                  95

Thr Leu Leu Arg Pro Glu Lys Asp Gly Thr Ala Thr Gly Val Asp Ala
              100                 105                 110

Ile Cys Thr His His Pro Asp Pro Lys Ser Pro Arg Leu Asp Arg Glu
          115                 120                 125

Gln Leu Tyr Trp Glu Leu Ser Gln Leu Thr His Asn Ile Thr Glu Leu
      130                 135                 140

Gly Pro Tyr Ala Leu Asp Asn Asp Ser Leu Phe Val Asn Gly Phe Thr
145                 150                 155                 160

His Arg Ser Ser Val Ser Thr Thr Ser Thr Pro Gly Thr Pro Thr Val
```

```
                    165                   170                   175
```

```
Tyr Leu Gly Ala Ser Lys Thr Pro Ala Ser Ile Phe Gly Pro Ser Ala
            180                   185                   190
```

```
Ala Ser His Leu Leu Ile Leu Phe Thr Leu Asn Phe Thr Ile Thr Asn
            195                   200                   205
```

```
Leu Arg Tyr Glu Glu Asn Met Trp Pro Gly Ser Arg Lys Phe Asn Thr
        210                   215                   220
```

```
Thr Glu Arg Val Leu Gln Gly Leu Leu Arg Pro Leu Phe Lys Asn Thr
225                   230                   235                   240
```

```
Ser Val Gly Pro Leu Tyr Ser Gly Cys Arg Leu Thr Leu Leu Arg Pro
                245                   250                   255
```

```
Glu Lys Asp Gly Glu Ala Thr Gly Val Asp Ala Ile Cys Thr His Arg
            260                   265                   270
```

```
Pro Asp Pro Thr Gly Pro Gly Leu Asp Arg Glu Gln Leu Tyr Leu Glu
            275                   280                   285
```

```
Leu Ser Gln Leu Thr His Ser Ile Thr Glu Leu Gly Pro Tyr Thr Leu
        290                   295                   300
```

```
Asp Arg Asp Ser Leu Tyr Val Asn Gly Phe Thr His Arg Ser Ser Val
305                   310                   315                   320
```

```
Pro Thr Thr Ser Thr Gly Val Val Ser Glu Glu Pro Phe Thr Leu Asn
                325                   330                   335
```

```
Phe Thr Ile Asn Asn Leu Arg Tyr Met Ala Asp Met Gly Gln Pro Gly
            340                   345                   350
```

```
Ser Leu Lys Phe Asn Ile Thr Asp Asn Val Met Lys His Leu Leu Ser
            355                   360                   365
```

```
Pro Leu Phe Gln Arg Ser Ser Leu Gly Ala Arg Tyr Thr Gly Cys Arg
        370                   375                   380
```

```
Val Ile Ala Leu Arg Ser Val Lys Asn Gly Ala Glu Thr Arg Val Asp
385                   390                   395                   400
```

```
Leu Leu Cys Thr Tyr Leu Gln Pro Leu Ser Gly Pro Gly Leu Pro Ile
                405                   410                   415
```

```
Lys Gln Val Phe His Glu Leu Ser Gln Gln Thr His Gly Ile Thr Arg
            420                   425                   430
```

```
Leu Gly Pro Tyr Ser Leu Asp Lys Asp Ser Leu Tyr Leu Asn Gly Tyr
            435                   440                   445
```

```
Asn Glu Pro Gly Pro Asp Glu Pro Pro Thr Thr Pro Lys Pro Ala Thr
        450                   455                   460
```

Thr Phe Leu Pro Pro Leu Ser Glu Ala Thr Thr Ala Met Gly Tyr His
465   470   475   480

Leu Lys Thr Leu Thr Leu Asn Phe Thr Ile Ser Asn Leu Gln Tyr Ser
                485   490   495

Pro Asp Met Gly Lys Gly Ser Ala Thr Phe Asn Ser Thr Glu Gly Val
            500   505   510

Leu Gln His Leu Leu Arg Pro Leu Phe Gln Lys Ser Ser Met Gly Pro
        515   520   525

Phe Tyr Leu Gly Cys Gln Leu Ile Ser Leu Arg Pro Glu Lys Asp Gly
    530   535   540

Ala Ala Thr Gly Val Asp Thr Thr Cys Thr Tyr His Pro Asp Pro Val
545   550   555   560

Gly Pro Gly Leu Asp Ile Gln Gln Leu Tyr Trp Glu Leu Ser Gln Leu
                565   570   575

Thr His Gly Val Thr Gln Leu Gly Phe Tyr Val Leu Asp Arg Asp Ser
            580   585   590

Leu Phe Ile Asn Gly Tyr Ala Pro Gln Asn Leu Ser Ile Arg Gly Glu
        595   600   605

Tyr Gln Ile Asn Phe His Ile Val Asn Trp Asn Leu Ser Asn Pro Asp
    610   615   620

Pro Thr Ser Ser Glu Tyr Ile Thr Leu Leu Arg Asp Ile Gln Asp Lys
625   630   635   640

Val Thr Thr Leu Tyr Lys Gly Ser Gln Leu His Asp Thr Phe Arg Phe
                645   650   655

Cys Leu Val Thr Asn Leu Thr Met Asp Ser Val Leu Val Thr Val Lys
            660   665   670

Ala Leu Phe Ser Ser Asn Leu Asp Pro Ser Leu Val Glu Gln Val Phe
        675   680   685

Leu Asp Lys Thr Leu Asn Ala Ser Phe His Trp Leu Gly Ser Thr Tyr
    690   695   700

Gln Leu Val Asp Ile His Val Thr Glu Met Glu Ser Ser Val Tyr Gln
705   710   715   720

Pro Thr Ser Ser Ser Ser Thr Gln His Phe Tyr Leu Asn Phe Thr Ile
                725   730   735

Thr Asn Leu Pro Tyr Ser Gln Asp Lys Ala Gln Pro Gly Thr Thr Asn
            740   745   750

129

Tyr Gln Arg Asn Lys Arg Asn Ile Glu Asp Ala Ala Pro His Arg Gly
        755   760   765

Gly Leu Pro Val
      770

<210> 389
<211> 833
<212> PRT
<213> Homo sapiens

<400> 389
Phe Lys Ser Thr Ser Val Gly Pro Leu Tyr Ser Gly Cys Arg Leu Thr
                  5   10   15

Leu Leu Arg Pro Glu Lys Asp Gly Thr Ala Thr Gly Val Asp Ala Ile
            20   25   30

Cys Thr His His Pro Asp Pro Lys Ser Pro Arg Leu Asp Arg Glu Gln
          35   40   45

Leu Tyr Trp Glu Leu Ser Gln Leu Thr His Asn Ile Thr Glu Leu Gly
        50   55   60

Pro Tyr Ala Leu Asp Asn Asp Ser Leu Phe Val Asn Gly Phe Thr His
65   70   75   80

Arg Ser Ser Val Ser Thr Thr Ser Thr Pro Gly Thr Pro Thr Val Tyr
                  85   90   95

Leu Gly Ala Ser Lys Thr Pro Ala Ser Ile Phe Gly Pro Ser Ala Ala
              100   105   110

Ser His Leu Leu Ile Leu Phe Thr Leu Asn Phe Thr Ile Thr Asn Leu
          115   120   125

Arg Tyr Glu Glu Asn Met Trp Pro Gly Ser Arg Lys Phe Asn Thr Thr
        130   135   140

Glu Arg Val Leu Gln Gly Leu Leu Arg Pro Leu Phe Lys Asn Thr Ser
145   150   155   160

Val Gly Pro Leu Tyr Ser Gly Cys Arg Leu Thr Leu Leu Arg Pro Glu
              165   170   175

Lys Asp Gly Glu Ala Thr Gly Val Asp Ala Ile Cys Thr His Arg Pro
          180   185   190

Asp Pro Thr Gly Pro Gly Leu Asp Arg Glu Gln Leu Tyr Leu Glu Leu
          195   200   205

Ser Gln Leu Thr His Ser Ile Thr Glu Leu Gly Pro Tyr Thr Leu Asp
        210   215   220

```
Arg Asp Ser Leu Tyr Val Asn Gly Phe Thr His Arg Ser Ser Val Pro
225                 230                 235                 240

Thr Thr Ser Thr Gly Val Val Ser Glu Glu Pro Phe Thr Leu Asn Phe
                245         .           250                 255

Thr Ile Asn Asn Leu Arg Tyr Met Ala Asp Met Gly Gln Pro Gly Ser
            260                 265                 270

Leu Lys Phe Asn Ile Thr Asp Asn Val Met Lys His Leu Leu Ser Pro
        275                 280                 285

Leu Phe Gln Arg Ser Ser Leu Gly Ala Arg Tyr Thr Gly Cys Arg Val
    290                 295                 300

Ile Ala Leu Arg Ser Val Lys Asn Gly Ala Glu Thr Arg Val Asp Leu
305                 310                 315                 320

Leu Cys Thr Tyr Leu Gln Pro Leu Ser Gly Pro Gly Leu Pro Ile Lys
                325                 330                 335

Gln Val Phe His Glu Leu Ser Gln Gln Thr His Gly Ile Thr Arg Leu
            340                 345                 350

Gly Pro Tyr Ser Leu Asp Lys Asp Ser Leu Tyr Leu Asn Gly Tyr Asn
        355                 360                 365

Glu Pro Gly Pro Asp Glu Pro Pro Thr Thr Pro Lys Pro Ala Thr Thr
    370                 375                 380

Phe Leu Pro Pro Leu Ser Glu Ala Thr Thr Ala Met Gly Tyr His Leu
385                 390                 395                 400

Lys Thr Leu Thr Leu Asn Phe Thr Ile Ser Asn Leu Gln Tyr Ser Pro
                405                 410                 415

Asp Met Gly Lys Gly Ser Ala Thr Phe Asn Ser Thr Glu Gly Val Leu
            420                 . 425               430

Gln His Leu Leu Arg Pro Leu Phe Gln Lys Ser Ser Met Gly Pro Phe
        435                 440                 445

Tyr Leu Gly Cys Gln Leu Ile Ser Leu Arg Pro Glu Lys Asp Gly Ala
    450                 455                 460

Ala Thr Gly Val Asp Thr Thr Cys Thr Tyr His Pro Asp Pro Val Gly
465                 470                 475                 480

Pro Gly Leu Asp Ile Gln Gln Leu Tyr Trp Glu Leu Ser Gln Leu Thr
                485                 490                 495

His Gly Val Thr Gln Leu Gly Phe Tyr Val Leu Asp Arg Asp Ser Leu
            500                 505                 510

Phe Ile Asn Gly Tyr Ala Pro Gln Asn Leu Ser Ile Arg Gly Glu Tyr
```

                515   520   525

Gln Ile Asn Phe His Ile Val Asn Trp Asn Leu Ser Asn Pro Asp Pro
     530   535   540

Thr Ser Ser Glu Tyr Ile Thr Leu Leu Arg Asp Ile Gln Asp Lys Val
545   550   555   560

Thr Thr Leu Tyr Lys Gly Ser Gln Leu His Asp Thr Phe Arg Phe Cys
                565   570   575

Leu Val Thr Asn Leu Thr Met Asp Ser Val Leu Val Thr Val Lys Ala
             580   585   590

Leu Phe Ser Ser Asn Leu Asp Pro Ser Leu Val Glu Gln Val Phe Leu
             595   600   605

Asp Lys Thr Leu Asn Ala Ser Phe His Trp Leu Gly Ser Thr Tyr Gln
     610   615   620

Leu Val Asp Ile His Val Thr Glu Met Glu Ser Ser Val Tyr Gln Pro
625   630   635   640

Thr Ser Ser Ser Ser Thr Gln His Phe Tyr Leu Asn Phe Thr Ile Thr
                645   650   655

Asn Leu Pro Tyr Ser Gln Asp Lys Ala Gln Pro Gly Thr Thr Asn Tyr
             660   665   670

Gln Arg Asn Lys Arg Asn Ile Glu Asp Ala Leu Asn Gln Leu Phe Arg
             675   680   685

Asn Ser Ser Ile Lys Ser Tyr Phe Ser Asp Cys Gln Val Ser Thr Phe
     690   695   700

Arg Ser Val Pro Asn Arg His His Thr Gly Val Asp Ser Leu Cys Asn
705   710   715   720

Phe Ser Pro Leu Ala Arg Arg Val Asp Arg Val Ala Ile Tyr Glu Glu
                725   730   735

Phe Leu Arg Met Thr Arg Asn Gly Thr Gln Leu Gln Asn Phe Thr Leu
             740   745   750

Asp Arg Ser Ser Val Leu Val Asp Gly Tyr Phe Pro Asn Arg Asn Glu
             755   760   765

Pro Leu Thr Gly Asn Ser Asp Leu Pro Phe Trp Ala Val Ile Leu Ile
     770   775   780

Gly Leu Ala Gly Leu Leu Gly Leu Ile Thr Cys Leu Ile Cys Gly Val
785   790   795   800

Leu Val Thr Thr Arg Arg Arg Lys Lys Glu Gly Glu Tyr Asn Val Gln
                805   810   815

Gln Gln Cys Pro Gly Tyr Tyr Gln Ser His Leu Asp Leu Glu Asp Leu
            820   825   830

Gln

<210> 390
<211> 438
<212> PRT
<213> Homo sapiens

<400> 390
Met Gly Tyr His Leu Lys Thr Leu Thr Leu Asn Phe Thr Ile Ser Asn
                5   10   15

Leu Gln Tyr Ser Pro Asp Met Gly Lys Gly Ser Ala Thr Phe Asn Ser
            20   25   30

Thr Glu Gly Val Leu Gln His Leu Leu Arg Pro Leu Phe Gln Lys Ser
        35   40   45

Ser Met Gly Pro Phe Tyr Leu Gly Cys Gln Leu Ile Ser Leu Arg Pro
    50   55   60

Glu Lys Asp Gly Ala Ala Thr Gly Val Asp Thr Thr Cys Thr Tyr His
65   70   75   80

Pro Asp Pro Val Gly Pro Gly Leu Asp Ile Gln Gln Leu Tyr Trp Glu
                85   90   95

Leu Ser Gln Leu Thr His Gly Val Thr Gln Leu Gly Phe Tyr Val Leu
            100   105   110

Asp Arg Asp Ser Leu Phe Ile Asn Gly Tyr Ala Pro Gln Asn Leu Ser
            115   120   125

Ile Arg Gly Glu Tyr Gln Ile Asn Phe His Ile Val Asn Trp Asn Leu
    130   135   140

Ser Asn Pro Asp Pro Thr Ser Ser Glu Tyr Ile Thr Leu Leu Arg Asp
145   150   155   160

Ile Gln Asp Lys Val Thr Thr Leu Tyr Lys Gly Ser Gln Leu His Asp
                165   170   175

Thr Phe Arg Phe Cys Leu Val Thr Asn Leu Thr Met Asp Ser Val Leu
            180   185   190

Val Thr Val Lys Ala Leu Phe Ser Ser Asn Leu Asp Pro Ser Leu Val
        195   200   205

Glu Gln Val Phe Leu Asp Lys Thr Leu Asn Ala Ser Phe His Trp Leu
    210   215   220

```
Gly Ser Thr Tyr Gln Leu Val Asp Ile His Val Thr Glu Met Glu Ser
225                     230                 235                 240

Ser Val Tyr Gln Pro Thr Ser Ser Ser Thr Gln His Phe Tyr Leu
                245                 250                 255

Asn Phe Thr Ile Thr Asn Leu Pro Tyr Ser Gln Asp Lys Ala Gln Pro
                260                 265                 270

Gly Thr Thr Asn Tyr Gln Arg Asn Lys Arg Asn Ile Glu Asp Ala Leu
            275                 280                 285

Asn Gln Leu Phe Arg Asn Ser Ser Ile Lys Ser Tyr Phe Ser Asp Cys
    290                 295                 300

Gln Val Ser Thr Phe Arg Ser Val Pro Asn Arg His His Thr Gly Val
305                 310                 315                 320

Asp Ser Leu Cys Asn Phe Ser Pro Leu Ala Arg Arg Val Asp Arg Val
                325                 330                 335

Ala Ile Tyr Glu Glu Phe Leu Arg Met Thr Arg Asn Gly Thr Gln Leu
            340                 345                 350

Gln Asn Phe Thr Leu Asp Arg Ser Ser Val Leu Val Asp Gly Tyr Phe
            355                 360                 365

Pro Asn Arg Asn Glu Pro Leu Thr Gly Asn Ser Asp Leu Pro Phe Trp
    370                 375                 380

Ala Val Ile Leu Ile Gly Leu Ala Gly Leu Leu Gly Leu Ile Thr Cys
385                 390                 395                 400

Leu Ile Cys Gly Val Leu Val Thr Thr Arg Arg Arg Lys Lys Glu Gly
                405                 410                 415

Glu Tyr Asn Val Gln Gln Gln Cys Pro Gly Tyr Tyr Gln Ser His Leu
            420                 425                 430

Asp Leu Glu Asp Leu Gln
            435

<210> 391
<211> 2627
<212> DNA
<213> Homo sapiens

<400> 391
ccacgcgtcc gcccacgcgt ccggaaggca gcggcagctc cactcagcca gtacccagat 60
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tagcatcatc attattctgg ctggagcaat tgcactcatc attggctttg gtatttcagg 180
gagacactcc atcacagtca ctactgtcgc ctcagctggg aacattgggg aggatggaat 240
cctgagctgc actttttgaac ctgacatcaa actttctgat atcgtgatac aatggctgaa 300
ggaaggtgtt ttaggcttgg tccatgagtt caaagaaggc aaagatgagc tgtcggagca 360
```

```
ggatgaaatg ttcagaggcc ggacagcagt gtttgctgat caagtgatag ttggcaatgc 420
ctctttgcgg ctgaaaaacg tgcaactcac agatgctggc acctacaaat gttatatcat 480
cacttctaaa ggcaagggga atgctaacct tgagtataaa actggagcct tcagcatgcc 540
ggaagtgaat gtggactata atgccagctc agagaccttg cggtgtgagg ctccccgatg 600
gttcccccag cccacagtgg tctgggcatc ccaagttgac caggagcca acttctcgga 660
agtctccaat accagctttg agctgaactc tgagaatgtg accatgaagg ttgtgtctgt 720
gctctacaat gttacgatca acaacacata ctcctgtatg attgaaaatg acattgccaa 780
agcaacaggg gatatcaaag tgacagaatc ggagatcaaa aggcggagtc acctacagct 840
gctaaactca aaggcttctc tgtgtgtctc ttctttcttt gccatcagct gggcacttct 900
gcctctcagc ccttacctga tgctaaaata atgtgccttg gccacaaaaa agcatgcaaa 960
gtcattgtta caacagggat ctacagaact atttcaccac cagatatgac ctagttttat 1020
atttctggga ggaaatgaat tcatatctag aagtctggag tgagcaaaca agagcaagaa 1080
acaaaagaa gccaaaagca gaaggctcca atatgaacaa gataaatcta tcttcaaaga 1140
catattagaa gttgggaaaa taattcatgt gaactagaca agtgtgttaa gagtgataag 1200
taaaatgcac gtggagacaa gtgcatcccc agatctcagg gacctccccc tgcctgtcac 1260
ctggggagtg agaggacagg atagtgcatg ttctttgtct ctgaattttt agttatatgt 1320
gctgtaatgt tgctctgagg aagcccctgg aaagtctatc ccaacatatc cacatcttat 1380
attccacaaa ttaagctgta gtatgtaccc taagacgctg ctaattgact gccacttcgc 1440
aactcagggg cggctgcatt ttagtaatgg gtcaaatgat tcactttta tgatgcttcc 1500
aaaggtgcct tggcttctct tcccaactga caaatgccaa agttgagaaa aatgatcata 1560
attttagcat aaacagagca gtcggcgaca ccgatttat aaataaactg agcaccttct 1620
ttttaaacaa acaaatgcgg gtttattct cagatgatgt tcatccgtga atggtccagg 1680
gaaggacctt tcaccttgac tatatggcat tatgtcatca caagctctga ggcttctcct 1740
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cagctggggt gatttcgccc cccatctccg ggggaatgtc tgaagacaat tttgttacc 1860
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tgctgctcaa cctcctacca tgtacaggac gtctccccat tacaactacc caatccgaag 1980
tgtcaactgt gtcaggacta agaaaccctg gttttgagta gaaaagggcc tggaaagagg 2040
ggagccaaca aatctgtctg cttcctcaca ttagtcattg gcaaataagc attctgtctc 2100
tttggctgct gcctcagcac agagagccag aactctatcg ggcaccagga taacatctct 2160
cagtgaacag agttgacaag gcctatggga aatgcctgat gggattatct tcagcttgtt 2220
gagcttctaa gtttctttcc cttcattcta ccctgcaagc caagttctgt aagagaaatg 2280
cctgagttct agctcaggtt ttcttactct gaatttagat ctccagaccc ttcctggcca 2340
caattcaaat taaggcaaca aacatatacc ttccatgaag cacacacaga cttttgaaag 2400
caaggacaat gactgcttga attgaggcct tgaggaatga agctttgaag gaaaagaata 2460
ctttgtttcc agcccccttc ccacactctt catgtgttaa ccactgcctt cctggacctt 2520
ggagccacgg tgactgtatt acatgttgtt atagaaaact gattttagag ttctgatcgt 2580
tcaagagaat gattaaatat acatttccta caccaaaaaa aaaaaaa      2627
```

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<210> 392
<211> 310
<212> PRT
<213> Homo sapiens

<400> 392
His Ala Ser Ala His Ala Ser Gly Arg Gln Arg Gln Leu His Ser Ala
                5                   10                  15

Ser Thr Gln Ile Arg Trp Glu Pro Ser Pro Ala Met Ala Ser Leu Gly
            20                  25                  30

Gln Ile Leu Phe Trp Ser Ile Ile Ser Ile Ile Ile Leu Ala Gly
        35                  40                  45

Ala Ile Ala Leu Ile Ile Gly Phe Gly Ile Ser Gly Arg His Ser Ile
```

135

```
        50                    55                    60

Thr Val Thr Thr Val Ala Ser Ala Gly Asn Ile Gly Glu Asp Gly Ile
 65                  70                  75                  80

Leu Ser Cys Thr Phe Glu Pro Asp Ile Lys Leu Ser Asp Ile Val Ile
                85                  90                  95

Gln Trp Leu Lys Glu Gly Val Leu Gly Leu Val His Glu Phe Lys Glu
            100                 105                 110

Gly Lys Asp Glu Leu Ser Glu Gln Asp Glu Met Phe Arg Gly Arg Thr
        115                 120                 125

Ala Val Phe Ala Asp Gln Val Ile Val Gly Asn Ala Ser Leu Arg Leu
    130                 135                 140

Lys Asn Val Gln Leu Thr Asp Ala Gly Thr Tyr Lys Cys Tyr Ile Ile
145                 150                 155                 160

Thr Ser Lys Gly Lys Gly Asn Ala Asn Leu Glu Tyr Lys Thr Gly Ala
                165                 170                 175

Phe Ser Met Pro Glu Val Asn Val Asp Tyr Asn Ala Ser Ser Glu Thr
            180                 185                 190

Leu Arg Cys Glu Ala Pro Arg Trp Phe Pro Gln Pro Thr Val Val Trp
        195                 200                 205

Ala Ser Gln Val Asp Gln Gly Ala Asn Phe Ser Glu Val Ser Asn Thr
    210                 215                 220

Ser Phe Glu Leu Asn Ser Glu Asn Val Thr Met Lys Val Val Ser Val
225                 230                 235                 240

Leu Tyr Asn Val Thr Ile Asn Asn Thr Tyr Ser Cys Met Ile Glu Asn
                245                 250                 255

Asp Ile Ala Lys Ala Thr Gly Asp Ile Lys Val Thr Glu Ser Glu Ile
            260                 265                 270

Lys Arg Arg Ser His Leu Gln Leu Leu Asn Ser Lys Ala Ser Leu Cys
        275                 280                 285

Val Ser Ser Phe Phe Ala Ile Ser Trp Ala Leu Leu Pro Leu Ser Pro
    290                 295                 300

Tyr Leu Met Leu Lys
305
```

```
<210> 393
<211> 283
<212> PRT
<213> Homo sapiens
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<400> 393

```
Met Ala Ser Leu Gly Gln Ile Leu Phe Trp Ser Ile Ile Ser Ile Ile
                    5                   10                  15

Ile Ile Leu Ala Gly Ala Ile Ala Leu Ile Ile Gly Phe Gly Ile Ser
                20                  25                  30

Gly Arg His Ser Ile Thr Val Thr Thr Val Ala Ser Ala Gly Asn Ile
            35                  40                  45

Gly Glu Asp Gly Ile Leu Ser Cys Thr Phe Glu Pro Asp Ile Lys Leu
        50                  55                  60

Ser Asp Ile Val Ile Gln Trp Leu Lys Glu Gly Val Leu Gly Leu Val
65                  70                  75                  80

His Glu Phe Lys Glu Gly Lys Asp Glu Leu Ser Glu Gln Asp Glu Met
                85                  90                  95

Phe Arg Gly Arg Thr Ala Val Phe Ala Asp Gln Val Ile Val Gly Asn
            100                 105                 110

Ala Ser Leu Arg Leu Lys Asn Val Gln Leu Thr Asp Ala Gly Thr Tyr
        115                 120                 125

Lys Cys Tyr Ile Ile Thr Ser Lys Gly Lys Gly Asn Ala Asn Leu Glu
    130                 135                 140

Tyr Lys Thr Gly Ala Phe Ser Met Pro Glu Val Asn Val Asp Tyr Asn
145                 150                 155                 160

Ala Ser Ser Glu Thr Leu Arg Cys Glu Ala Pro Arg Trp Phe Pro Gln
                165                 170                 175

Pro Thr Val Val Trp Ala Ser Gln Val Asp Gln Gly Ala Asn Phe Ser
            180                 185                 190

Glu Val Ser Asn Thr Ser Phe Glu Leu Asn Ser Glu Asn Val Thr Met
        195                 200                 205

Lys Val Val Ser Val Leu Tyr Asn Val Thr Ile Asn Asn Thr Tyr Ser
    210                 215                 220

Cys Met Ile Glu Asn Asp Ile Ala Lys Ala Thr Gly Asp Ile Lys Val
225                 230                 235                 240

Thr Glu Ser Glu Ile Lys Arg Arg Ser His Leu Gln Leu Leu Asn Ser
                245                 250                 255

Lys Ala Ser Leu Cys Val Ser Ser Phe Phe Ala Ile Ser Trp Ala Leu
            260                 265                 270

Leu Pro Leu Ser Pro Tyr Leu Met Leu Lys
        275                 280
```

11729.1 contg

TTAGAGAGGCACAGAAGGAAGAAGAGTTAAAAGCAGCAAAGCCGGGTTTTTTGTTTTGT
TTTGTTTGTTTTGTTTTGAGATGGAGTCTCACTCTGTTGCCCAAGCTGGAGTACAACGGCA
TGATCTCAGCTCGCTGCAACCTCCGCCTCCCACGTTCAAGTGATTCTCCTGCCTCAGCCTCC
CAAGTAGCTGCGATTACAGGCGCCCGCCACCACGCTCAGCTAATTTTTTTTGTATTTTTAGT
AGAGACAGGGTTTCACCAGGTTGGCCAGGCTGCTCTTGAACTCCTGACCTCAGGTGATCCA
CCCGCCTCGGCCTCCCAAAGTGCTGGGATTACAGGCGTGAGCCACCACGCCCGGCCCCCAA
AGCTGTTTCTTTTGTCTTTAGCGTAAAGCTCTCCTGCCATGCAGTATCTACATAACTGACGT
GACTGCCAGCAAGCTCAGTCACTCCGTGGTC

11729-45.21.21.cons1

TAGGATGTGTTGGACCCTCTGTGTCAAAAAAAACCTCACAAAGAATCCCCTGCTCATTACA
GAAGAAGATGCATTTAAAAATATGGGTTATTTTCAACTTTTTATCTGAGGACAAGTATCCAT
TAATTATTGTGTCAGAAGAGATTGAATACCTGCTTAAGAAGCTTACAGAAGCTATGGGAG
GAGGTTGGCAGCAAGAACAATTTGAACATTATAAAATCAACTTTGATGACAGTAAAAATG
GCCTTTCTGCATGGGAACTTATTGAGCTTATTGGAAATGGACAGTTTAGCAAAGGCATGGA
CCGGCAGACTGTGTCTATGGCCAATTAATGAAGTCTTTAATGAACTTATATTAGATGTGTTA
AAGCAGGGTTACATGATGAAAAAGCGGCCACAGACGGAAAAACTGCACTGAAAGATGGTT
TGTACTAAAACCCAACATAATTTCTTACTATGTGAGTGAGGATCTGAAGGATAAGAAAGG
AGACATTCTCTTGGATGAAAATTGCTGTGTAGAGTCCTTGCCTCACAAAGATGCAAA

11729-45.21.21.cons2

TTAGAGAGGCACAGAAGGAAGAAGAGTTAAAAGCAGCAAAGCCGGGTTTTTTGTTTTGT
TTTGTTTGTTTTGTTTTGAGATGGAGTCTCACTCTGTTGCCCAAGCTGGAGTACAACGGCA
TGATCTCAGCTCGCTGCAACCTCCGCCTCCCACGTTCAAGTGATTCTCCTGCCTCAGCCTCC
CAAGTAGCTGGGATTACAGGCGCCCGCCACCACGCTCAGCTAATTTTTTTTGTATTTTTAGT
ACAGACAGGGTTTCACCAGGTTGGCCAGGCTGCTCTTGAACTCCTGACCTCAGGTGATCCA
CCCGCCTCGGCCTCCCAAAGTGCTGGGATTACAGGCGTGAGCCACCACGCCCGGCCCCCAA
AGCTGTTTCTTTTGTCTTTAGCGTAAAGCTCTCCTGCCATGCAGTATCTACATAACTGACGT
GACTGCCAGCAAGCTCAGTCACTCCGTGGTC

11731.1contig

TCTTTTTCTTTCGATTTCCTTCAAATTTGTCACGTTTGATTTTATGAAGTTGTTCAAGGGCTAA
CTGCTGTGTATTATAGCTTTCTCTGAGTTCCTTCAGCTGATTGTTAAATGAATCCATTTCTG
ACAGCTTAGATGCAGTTTCTTTTCAACAGCCATCTAATTGTTCTTTAAGTCTTTGGCATAAT
TCTTCCTTTTCTGATGACTTTTATCAAGTAAACTGATCCCTGAATCAGGTGTGTTACTGAG
CTGCATGTTTTTAATTCTTTCGTTTAATAGCTGCTTCTCAGCGACCAGATAGATAAGCTTAT
TTTGATATTCCTTAAGCTCTTGTTGAAGTTCTTCATTTCCATAATTTCCAGGTCACACTGT
TTATCCAAAACTTCTAGCTCAGTCTTTTGTGTTTGCTTTCTGATTTGGACATCTTGTAGTCTG
CCTCAGATCTGCTGATGKTTTCCATTCACTGCTTCCAGTTCCAGGTGGAGACTTTXCTTTCT
GGAGCTCAGCCTGACAATGCCTTCTTGXTCCCT

FIG. 14

11731.2contig

```
AGCCAGATGCCTGAGAGCTGCAAGAAGAAGTCAGGATCATGATGGCTCAGTTTCCCACAG
CGATGAATGGAGGGGCCAAATATGTGGGCTATTACATCTGAAGAACGTACTAAGCATGATA
AACAGTTTGATAACCTCAAACCTTCAGGAGGTTACATAACAGGTGATCAAGCCCGTACTTT
TTTCCTACAGTCAGGTCTGCCGGCCCCGGTTTTAGCTGAAATATGGGCCTTATCAGATCTG
AACAAGGATGGGAAGATGGACCAGCAAGAGTTCTCTATAGCTATGAAACTCATCAAGTTA
AAGTTGCAGGGGCCAACAGCTCCCTGTAGTCCTCCCTCCTATCATGAAACAACCCCCTATGT
TCTCTCCACTAATCTCTGCTCGTTTTGGGATGGGAAGCATGCCCAATCTGTCCATTCATCAG
CCATTGCCTCCAGTTGCACCTATAGCAACACCCTTGTCTTCTGCTACTTCAGGGACCAGTAT
TCCTCCCCTAATGATGCCTGCTCCCCTAGTGCCTTCTGTTAGTA
```

11734.1contig

```
AATAGATTTAATGCAGAGTGTCAACTTCAATTGATTGATAGTGGCTGCCTAGAGTGCTGTG
TTGAGTAGGTTTCTGAGGATGCACCCTGGCTTGAAGAGAAAGACTGGCAGGATTAACAAT
ATCTAAAATCTCACTTGTACGAGAAACCACAGGCACCAGAGCTGCCACTGGTGCTGGCAC
CAGCTCCACCAAGGCCAGCGAAGAGCCCAAATGTGAGAGTGGCGGTCAGGCTGGCACCAG
CACTGAAGCCACCACTGGTGCTGGCACTGCCACTGGCACTGTTATTGGTACTGGTACTGGC
ACCAGTGCTGGCACTGCCACTCTCTTGCGCTTTGGCTTTAGCTTCTGCTCCCGCCTGGATCC
GGGCTTTGGCCCAGGGTCCGATATCAGCTTCGTCCCAGTTGCAGGGCCCGGCAGCATTCTC
CGAGCCGAGCCCAATGCCCATTCGAGCTCTAATCTCGCCCCTAGCCTTGCCTTCAGCTGCA
GCCTCAGCTGCAGCCTTCAAATCCGGTTCCATCGCCTCTCGGTAC
```

11734.2contig

```
GCCAAGAAAGCCCGAAAGGTGAAGCATCTGCATGGGGAAGAGGATGGCACCAGTGATCA
GAGTCAGGCCTTCTGGAACCACACGTGGCCGAAGGGTCTCAAAGCCCCTAATGGCCTCAAT
GGCCCCCAGGGCTTCAACGGGTCCCATAGCCTTTGGGCCCCGCAGGGCATCAAGGACTCG
GTTGGCTGCTTGGGCCCGGACAGCCTTCCTCTCTCCCTGACATCACCTAAAGCCCGTAGGGCC
AAGCCTCGCCGTAGAGCTGCCAAGGCTCCAGTCATCCCAAGAGCCTGAAGCACCACCACCT
CGGGATGTGCCCCTTTTGCAAGGGCAGGGCAAATGATTTGGTGAAGTACCTTTTGGCTAAAG
ACCAGACGAAGATTCCCATCAAGCCGCTGGCACATGCTGAAGGACATCATCAAAGAATACA
CTGATGTGTACCCCGAAATCATTGAACGACCAGGCTATTCCTTGGAGAAGCCTATTTGGGAT
TCAATTGAAGGAAAATTGATAAGAAATGACCACTTGTACATTCTTCTCACC
```

11736.1contig

```
GAGGTCTCACTATGTTGCCCAGGCTGTTCTTCAAACTCCTGGGATCAAGCAATCCACCCATG
TTGGTCTCCAAAAGTGCTGGGATCATAGGCGTGAGCCACCTCACCCAGCCACCAATTTTCA
ATCAGGAACACTTTTTCCTTCTTCAAGAAGTCAAGGGTTTCCAGAGTATAGCTACACTATT
GCTTGCCTGAGGGTGACTACAAAATTCCTTGCTAAAACGTTAGGATGGGTAAAGAATTAG
ATTTTCTGAATGCAAAAATAAAATGTGAACTAATGAACTTTACGTAATACATATTCATAAA
ATAATTATTCACATATTTCCTGATTTATCACAGAAATAATGTATGAAATGCTTTGAGTTTCT
TGGAGTAAACTCCATTACTCATCCCAAGAAACCATATTATAAGTATCACTGATAATAAGAA
CAACAGGACCTTGTCATAAAATTCTGGATAAAGAGAAAATAGTCTCTGGGTGTTTGXTCTTAAT
TGATAAAATTTACTTGTCCATCTTTTAGTTCAGAATCACAAAA
```

FIG. 1B

11736.2contig

AAGCGGAAATGAGAAAGGAGGGAAAATCATGTGGTATTGAGCGGAAAACTGCTGGATGA
CAGGGCTCAGTCCTGTTGGAGAACTCTGGGTGGTGCTGTAGAACAGGGCCACTCACAGTG
GGGTGCACAGACCAGCACGGCTCTGTGACCTGTTTGTTACAGGTCCATGATGAGGTAAAC
AATACACTGAGTATAAGGGTTGGTTTAGAAACTCTTACAGCCAATTTGACAAAGTAATCTTC
TGTGCAGTGAATCTAAGAAAAAAATTGGGGCTGTATTTGTATGTTCCTTTTTTTTCATTTCAT
GTTCTGAGTTACCTATTTTTATTGCATTTTTACAAAAGCATCCTTCCATGAAGGACCGGAAGT
TAAAAACAAAGCAGGTCCTTTATCACAGCACTGTCGTAGAACACAGTTCAGAGTTATCCAC
CCAAGGAGCCAGGGAGCTGGGCTAAACCAAAGAATTTTGCTTTTGGTTAATCATCAGGTA
CTTGAGTTGGAATTGTTTTAATCCCATCATTACCAGGCTGGAXGTG

11739-1&2

CCGCGGCTCCTGTCCAGACCCTGACCCTCCCTCCCAAGGCTCAACCGTCCCCCAACAACCG
CCAGCCTTGTACTGATGTCGGCTGCGAGAGCCTGTGCTTAAGTAAGAATCAGGCCTTATTG
GAGACATTCAAGCAAAGGTTGGACAACTACTTTTCCAGAACAGAAAGGAAACTCATGCAT
CAGAAAAGGTGACTAATAAAGGTACCAGAAGAATATGGCTGCACAAATACCAGAATCTGA
TCAGATAAAAACAGTTTAAGGAATTTCTGGGGACCTACAATAAACTTACAGAGACCTGCTTT
TTGGACTGTGTTAGAGACTTCACAACAAGAGAAGTAAAACCTGAAGAGACCACCTGTTCA
GAACATTGCTTACAGAAATATTTAAAAAATGACACAAAGAATATCCATGAGATTTCAGGAA
TATCATATTCAGCAGAATGAAGCCCTGCCAGCCAAAGCCAGGACTCCTTGGCCAACCACGA
TAGAGAAGTCCTGATGGATCAACTTTTGATGAAAGATTCCCAACAGCTGCTTTATTGGAAA
TGAGGACTCATCTGATAGAATCCCCTGAAACCAGTAGCCACCATGTTCAACCATCTGTCAT
GACTGTTTGGCAAAATGGAAACCGCTGGAGAAACAAAATTGCTATTTACCAGGAATAATCA
CAATACAAACGTCTTATTGTTCAGTGAAATAATAAGATGCAACATTTGTTGAGGCCTTATGA
TTCAGCAGCTTGGTCACTTGATTTAGAAAAATAAACCATTGTTTCTTCAATTGTGACTGTTA
ATTTTAAAGCAACTTATGTGTTCGATCATGTATGAGATAGAAAAATTTTTATTACTCAAAG
TAAAATAAATGGA

11740.1.contig

GAAAAAAAATATAAAACACACTTTTGCGAAAACGGTGGCCCTAAAAGACGAAAAGAATTT
CACCAATATAAATCCAATTTTATGAAAACTGACAATTTAATCCAAGAATCACTTTTGTAAA
TGAAGCTAGCAAGTGATGATATGATAAAATAAACGTGGACCAAATAAAAACACAAGACTT
GGCATAAGATATATCCACTTTTGATATTAAACTTGTGAAGCATATTCTTCGACAAATTGTG
AAAGCGTTCCTGATCTTGCTTGTTCTCCATTTCAAATAAGGAGGCATATCACATCCCAAGA
GTAATAGAAAAAGAAAAAAAGACATTTTTGCATTTTGAGATGAACCAAAGACACAAAACAA
AACGAACAAAGTGTCATGTCTAATTCTAGCCTCTGAAATAAACCTTGAACATCTCCTACAA
GGCACCGTCATTTTTGTAATTCTAACCTGAAGAAATGTGATGACTTTTGTGCACATGAAAA
TCAGATGAGAAAACTGTGGTCTTTCCAAAGCCTGAACTCCCCTGAAAACCTTTGCA

FIG. 1C

11766.1.contig

```
CTGGGATCATTTCTCTTGATGTCATAAAAGACTCTTCTTCTTCCTCTTCATCCTCTTCTTCAT
CCTCTTCTGTACAGTGCTGCCGGGTACAACGGCTATCTTTGTCTTTATCCTGAGATGAAGAT
GATGCTTCTGTTTCTCCTACCATAACTGAAGAAATTTCGCTGGAAGTCGTTTGACTGGCTGT
TTCTCTGACTTCACCTTCTTTGTCAAACCTGAGTCTTTTTACCTCATGCCCCTCAGCTTCCAC
AGCATCTTCATCTGGATGTTTATTTTTCAAAGGGCTCACTGAGGAAACTTCTGATTCAGAG
GTCGAAGAGTCACTGTGATTTTTCTCCTCATTTTGCTGCAAATTTGCCTCTTTGCTGTCTGT
GCTCTCAGGCAACCCATTTGTTGTCATGGGGGCTGACAAAGAAACCTTTGGTCGATTAAGT
GGCCTGGGTGTCCCAGGCCCATTTATATTAGACCTCTCAGTATAGCTTGGTGAATTTCCAG
GAAACATAACACCATTCATTCGATTTAAACTATTGGAATTGGTTTT
```

11766.2.contig

```
GAGGGTTGGTGGTAGCGGCTTGGGGAGGTGCTCGCTCTGTCGGTCTTGCTCTCTCGCACGC
TTCCCCCGGCTCCCTTCGTTTCCCCCCCCGGTCGCCTGCGTGCCGGAGTGTGTGCGAGGG
AGGGGGAGGGCGTCGGGGGGGTGGGGGGAGGCGTTCCGGTCCCCAAGAGACCCGCGGAG
GGAGGCGGAGGCTGTGAGGGACTCCGGGAAGCCCATGGACGTCGAGAGCCTCCAGGAGGC
GCTGAAAGATTTTGAGAAGAGCGGGCAAAAAGGAAGTTTGTCCTGTCCTGGATCAGTTTCT
TTGTCATGTAGCCAAGACTGGACAAACAATGATTCAGTGGTCCCAATTTAAAGGCTATTTT
ATTTTCAAACTGGAGAAAGTGATGGATGATTTCAGAACTTCAGCTCCTGAGCCAAGAGGTC
CTCCCAACCCTAATGTCGA
```

11773.2.contig

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AAGCAGGCGGCTCCCGCGCTCGCAGCGCCGTGCCACCTGCCCGCCCGCCCGCTCGCTCGCT
CGCCCGCCGCGCCGCGCTGCCGACCGCCAGCATGCTCCCGACAGTGGGCTGCCCCGCGCT
GCCGXTGCCG
```

11775-1&2

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ATCTCTTGTATGCCAAATATTTAATATAAATCTTTGAAACAAGTTCAGATGAAATAAAAAT
CAAAGTTTGCAAAAACGTGAAGATTAACTTAATTGTCAAATATTCCTCATTGCCCCAAATC
AGTATTTTTTTATTTCTATGCAAAAGTATCCCTTCAAACTCCTTAAATGATATATGATATG
ATACACAAACCAGTTTTCAAATAGTAAAGCCAGTCATCTTGCAATTGTAAGAAATAGGTA
AAAGATTATAAGACACCTTACACACACACACACACACGTGTGCACGCCAATGAC
AAAAAACAATTTGGCCTCTCCTAAAATAAGAACATGAAGACCCTTAATTGCTGCCAGGAG
GGAACACTGTGTCACCCCTCCCTACAAATCCAGGTAGTTTCCTTTAATCCAATAGCAAATCT
GGGCATATTTGAGAGGACTGATTCTGACAGCCACGTTGAAATCCTGTGGGGAACCATTCAT
GTCCACCCACTCGTGCCCTGAAAAAATCCCAATAATTTTTCCCTCCCACTTCTGCTGCTGTC
TCTTCCACATCCTCACATAGACCCCAGACCCGCTGCCCCCTGGCTGGGCATCGCATTGCTG
GTAGAGCAAGTCATAGGTCTCGTCTTTGACGTCACAGAAGCGATACACCAAATTGCCTGGT
CGGTCATTGTCATAACCAGAGA
```

FIG. 1D

11777.1&2.cons

```
CAGACGGGGTTTCACTATGTTGGCTAGGCTGGTCTTGAACTCCTGACTTCAGGTGATCTGC
CTGCCTTGGCCTCCCAAAGTGCTGGGATTACAGGCATAAGCCACTGCGCCCGGCTGATCTG
ATGGTTTCATAAGGCTTTTCCCCCTTTTGCTCACCACTTCTCCTTCCTGCCGCCATGTGAAG
AAGGACATGTTTGCTTCCCCTTCCACCACGATTGTAAGTTGTTTCCTGAGGCCTCCCCGGCC
ATGCTGAACTGTGAGTCAATTAAACCTCTTTCCTTTATAAATTATCCAGTTTTGGGTATGTC
TTTATTAGTAGAATGAGAACAGACTAATACAACCCTTAAAGGAGACTGACGGAGAGGATT
CTTCCTGGATCCCAGCACTTCCTCTGAATGCTACTGACATTCTTCTTGAGGACTTTAAACTG
GGAGATAGAAAACAGATTCCATGGCTCAGCAGCCTGAGAGCAGGGAGGGAGCCAAGCTA
TAGATGACATGGGCAGCCTCCCCTGAGGCCAGGTGTGGCCGAACCTGGGCAGTGCTGCCAC
CCACCCCACCAGGGCCAAGTCCTGTCCTTGGAGAGCCAAGCCTCAATCACTGCTAGCCTCA
AGTGTCCCCAAGCCACAGTGGCTAGGGGGACTCAGGGAACAGTTCCCAGTCTGCCCTACTT
CTCTTACCTTTACCCCTCATACCTCCAAAGTAGACCATGTTCATGAGGTCCAAAGG
```

11779.2.contig

```
AAGCGAGGAAGCCACTGCCGCTCCTGCCTGAAAACCGGCGCCAGGCTCGGGAACAGAGG
GAACGCGAAGAACAGGAGCGGAAGCTCCAGGCTGAAAGGGACAAGCGAATGCGAGAGG
AGCAGCTGGCCCGGGAGGCTGAAGCCCCGGGCTGAACGTGAGCGCCGAGGCGCGGAGACGG
GAGGAGCAGGAGGCTCGAGACAAGCCGCAGGCTGACCAGGAGGAGCACGAGCCACTGCA
GAAGCAGAAACAGGAAGCCGAAGCCCGGTCCCCGGAAGAAGCTGAGCGCCAGCGCCAGG
AGCGGGAAAAGCACTTTCAGAACCACGAACAGGAGAGACAAGAGCGAAGAAAGCGGCTG
GAGCAGATAATGAAGAGCACTCGGAAATCAGAAGCCGCCGAAACCAAGAAGCAGGATGC
AAAGGAGACCGCAGCCTAACAATTCCGGCCCAGACCCTTGTGAAAGCTGTAGAGACTCGGC
CCTCTGGGCTTCCAGAAAACGATTCTATTGCAGAAAGGAAGGAGCCTXGGCCCCCCCAXGGA
```

11781 & 37.cons

```
CTCTCTGGAAAACTGATGAGGAATGAATTTACCATTACCCATGTTCTCATCCCCAAGCAAA
GTGCTGGGTCTGATTACTGCAACACACACAACGAAGAAGAACTTTTCCTCATACAGGATC
AGCAGGGCCTCATCACACTGGGCTGGATTCATACTCACCCCACACACAGACCCCGTTTCTCTC
CAGTGTCGACCTACACAGTCACTCCTCTTACCAGATGATGTTGCCACAGTCAGTAGCCATT
GTTTGCTCCCCCAAGTTCCAGGAAACTGGATTCTTTAAACTAACTGACCATGGACTAGAGG
AGATTTCTTCCTGTCGCCAGAAAGGATTTCATCCACACACCAAGGATCCACCTCTGTTCTG
TAGCTGCAGCCACCTGACTCTTCTCGGACACAGCAGTGACCATCACAGACCTTCGATGAGC
GTTTGAGTCCAACACCTTCCAAGAACAACAAAACCATATCAGTGTACTGTAGCCCCTTAAT
TTAAGCTTTCTAGAAAGCTTTCCAAGCTTTTGTAGATAGTAGAAAGCGGGGCATCACXTGA
GAAAGAGCTGATTTTGTATTTCACGCTTTGAAAAGAAATAACTGAACATATTTTTTAGGCAA
GTCAGAAAGACAACATGCTCACTCAAAACCAACTGTAACTCAGAAATTAAGTTACTCAGA
AATTAAGTAGCTCAGAAATTAAGAAAGAATGGTATAATGAACCCCATATACCCTTCCTTC
TGGATTCACCAATTGTTAAACATTTTTTCCTCTCACCTATCCTTCTAATTTCTCTCTAATTTC
AATTTGTTTATATTTACCTCTGGGCTCAATAACGGCATCTGTGCCAGAAATTTGGAAGCCAT
TTAGAAAATCTTTTGGATTTTCCTGTGGTTTATGGCAATATGAATGGAGCTTATTACTGGG
GTGAGCGACAGCTTACTCCATTGACCAGATTGTTTGGCTAACACATCCCGAAGAATGATT
TTGTCAGGAATTATTGTTATTTAATAAATATTTCAGGATATTTTTCCTCTACAATAAAGTAA
CAAT
```

FIG. 1E

11781-76-87-37

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CTCTGTGGAAAACTGATGAGGAATGAATTTACCATTACCCATGTTCTCATCCCCAAGCAAA
GTGCTGGGTCTGATTACTGCAACACAGAGAACGAAGAAGAACTTTTCCTCATACAGGATC
AGCAGGGCCTCATCACACTGGGCTGGATTCATACTCACCCCACACAGACCGCGTTTCTCTC
CAGTGTCGACCTACACACTCACTGCTCTTACCAGATGATGTTGCCAGAGTCAGTAGCCATT
GTTTGCTCCCCCAAGTTCCAGGAAACTGGATTCTTTAAACTAACTGACCATGGACTAGAGG
AGATTTCTTCCTGTCGCCAGAAAGGATTTCATCCACACAGCAAGGATCCACCTCTGTTCTG
TAGCTGCAGCCACGTGACTGTTGTGGACAGAGCAGTGACCATCACAGACCTTCGATGAGC
GTTTGAGTCCAACACCTTCCAAGAACAACAAAACCATATCAGTGTACTGTAGCCCCTTAAT
TTAAGCTTTCTAGAAAGCTTTGGAAGTTTTTGTAGATAGTAGAAAGGGGGGCATCACCTGA
GAAAGAGCTGATTTTGTATTTCAGGTTTGAAAAGAAATAACTGAACATATTTTTTAGGCAA
GTCAGAAAGAGAACATGGTCACCCAAAAGCAACTGTAACTCAGAAATTAAGTTACTCAGA
AATTAAGTAGCTCAGAAATTAAGAAAGAATGGTATAATGAACCCCCATATACCCTTCCTTC
TGGATTCACCAATTGTTAACATTTTTTTCCTCTCAGCTATCCTTCTAATTTCTCTCTAATTTC
AATTTGTTTATATTTACCTCTGGGCTCAATAAGGGCATCTGTGCAGAAATTTGGAAGCCAT
TTAGAAAATCTTTTGGATTTTCCTGTGGTTTATGGCAATATGAATGGAGCTTATTACTGGG
GTGAGGGACAGCTTACTCCATTTGACCAGATTGTTTGGCTAACACATCCCGAAGAATGATT
TTGTCAGGAATTATTGTTATTTAATAAATATTTCAGGATATTTTTCCTCTACAATAAAGTAA
CAATTA
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11784-1 & 2

```
GGACGACAAGGCCATCGCCGATATCCGATCCGAATTCAAGCCTTTGGAATTAAATAAACCT
GGAACAGGGAAGGTGAAAGTTCCAGTCAGATGTCTTCCATATCTATACCTTTGTGCACAGT
TGAATCGGAACTGTTTGCGTTAGGCCATCTTAGAGTTGATTGATGCAAAAAGCAGACAG
GAACTCGTGGGAGGTCAAGTCGGGCAAGTTGGTGAATGTCGGAATAACTTACCTTTGTGCTC
CACTTAAAACCAGATGTGTTGCCACCTTTCCTGACATGCAAGGATCTACTTTAATTCCACACT
CTCATTAATAAATTGAATAAAAAGGCAATGTTTTGGCACCTGATATAATCTGCCAGGCTATG
TGACAGTAGGAAGGAATGGTTTGCCCTAACAAGCCCAATGCACTGGTCTGACTTTATAAAT
TATTTAATAAAAATGAACTATTATC
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11785-1.contig

```
GGCACTCACATTCACCATCATGGGAACCACCTTCCCTTTTCTTCAGGATTCTCTGTAGTGG
AAGAGAGCACCCAGTGTTCGGGCTGAAAAACATCTGAAAGTAGGGAGAAGAACCTAAAATA
ATCAGTATCTCAGAGGGCTCTAAGCTCCCAAGAAGTCTCACTGGACATTTAAGTCCCAAC
AAAGGCATACTTTCGCAATCCCTAAGTCAAAACTTTCTAACTTCTGTCTCTCTCAGAGACA
AGTGAGACTCAAGAGTCTACTGCTTTAGTGGCAACTACAGAAAACTGGTGTTACCCAGAA
CCTTTGCCCATTTAGGCTTTCTTCTCTTTCCTTTCTCTTTATTAACCACT
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FIG. 1F

11718-1&2 cons

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TGCGCTGAAAACAACGGCCTCCTTTACTGTTAAAATGCAGCCCACAGGTGCTTAGCCGTGGG
CATCTCAACCACCAGCCTCTGTGGGGGCAGGTGGGCGTCCCTGTGGGCCTCTGGGCCCAC
GTCCAGCCTCTGTCCTCTGCCTTCCGTTCTTCGACAGTGTTCCCGGCATCCCTGGTCACTTG
GTACTTGGCGTGGGCCTCCTGTGCTGCTCCAGCAGCTCCTCCAGGXGGTCGGCCCGCTTCA
CCGCAGCCTCATGTTGTGTCCGGAGGCTGCTCACGGCCTCCTCCTTCCTCGCGAGGGCTGT
CTTCACCCTCCGGXGCACCTCCTCCAGCTCCAGCTGCTGGCGGGCCTGCAGCGTGGCCAGC
TCGGCCTTGGCCTGCCGCGTCTCCTCCTCARAGGCTGCCAGCCGGTCCTCGAACTCCTGGC
GGATCACCTGGGCCAGGTTGCTGCGCTCGCTAGAAAGCTGCTCGTTCACCGCCTGGGCATC
CTCCAGCGCCCGCTCCTTCTGCCGCACAAGGCCCTGCAGACGCAGATTCTCGCCCTCGGCcT
CCCCAAGCTGGCCCTTCAGCTCCGAGCACCGCTCCTGAAGCTTCCGCTCCGACTGCTCCAG
CTCGGAGAGCTCGGCCTCGTACTTGTCCCGTAAGCGCTTGATGCGGCTCTCGGCAGCCTTC
TCACTCTCCTCCTTGGCCAGCGCCATGTCGGCCTCCAGCCGGTGAATGACCAGCTCAATCT
CCTTGTCCCGGCCTTTCCGGATTTCTTCCCTCAGCTCCTGTTCCCGGTTCAGCAGCCACGCC
TCCTCCTTCCTGGTGCGGCCGGCCTCCCACGCCTGCCTCTCCAGCTCCAGCTGCTGCTTCAG
GGTATTCAGCTCCATCTGGCGGGCCTGCAGCGTGGCCA
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13690.4

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CAACTTATTACTTGAAATTATAATATAGCCCTGTCCGTTTGCTGTTTCCAGGCTGTGATATAT
TTTCCTAGTGGTTTGACTTTAAAAATAAATAAGGTTTAATTTTCTCCCC
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13693.1

```
TGCAAGTCACGGCAGTTTATTTATTTAATTTTTTCCCCAGATGGAGACTCTGTCGCCCAGG
CTGGAGTGCAATGGTGTGATCTTGGCTCACTGCAACCTCCACCTCCTGGGTTCAAGCGATT
CTCCTGCCACAGCCTCCCGAGTAGCTGGGATTACAGGTGCCCGCCACCACCACCCAGCTAAT
TTTTATATTTTTAGTAAAGACAGGGTTTCCCCATGTTGGCCAGGCTGGTCTTGAACTTCTGA
CCTCAGGTGATCCACCTGCCTCGGCCTCCCAAAGTGTTGGGATTACAGGCGTGAGCTACCC
GTGCCTGCCCAGCCACTGGAGTTTAAAGGACAGTCATGTTGGCTCCAGCCTAACGCGGCA
TTTTCCCCATCAGAAAGCCCGCGGCTCCTGTACCTCAAAATAGGGCACCTGTAAAGTCAG
TCAGTGAAGTCTCTCCTCTAACTGGCCACCCGGGGCCATTGGCNTCTGACACAGCCTTGCC
AGGANCCCTGCATCTGCAAAAGAAAAGTTCACTTCCTTTCCG
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13694.1

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CAGAGAATCTKAGAAAGATGTCGCGTTTTCTTTTAATGAATGAGAGAAGCCCATTTGTATC
CCTGAATCATTGACAAAAGCCCGCCGCTCGGCGACAGCGGCGACCTAGGGATCGATCTGGAG
GGACTTGGGGAGCGTGCAGAGACCTCTACCTCGAGCGCCGACGGACCTCCCGCCGGGATGC
CTGGGCACCAGATGGACCCTACTGGAAGTCAGTTGGATTCAGATTTCTCTCAGCAAGATAC
TCCTTGCCTGATAATTGAAGATTCTCAGCCTGAAAGCCCAGGTTCTAGAGGATGATTCTGGT
TCTCACTTCAGTATGCTATCTCCACACCTTCCTAATCTCCAGACGCACAAAGAAAATCCTG
TGTTGGATGTTGNGTCCAATCCTTGAACAAACAGCTGGAGAAGAACGAGCAGACCGGTAA
TAGTCGGTTCAATGAACATTTGAAAGAAAACCACGTTGCAGACCCTG
```

FIG. 1G

13694.2

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GACTGTCCTGAACAAGGGACCTCTGACCACAGAGCTGCAGGAGATGCAGAGTGGTGGCAG
GAGTGGAAGCCAAAGAACACCCACCTTCCTCCCTTGAAGGAGTAGAGCAACCATCAGAAG
ATACTGTTTTATTGCTCTGGTCAAACAAGTCTTCCTGAGTTGACAAAACCTCAGGCTCTGGT
GACTTCTGAATCTGCAGTCCACTTTCCATAAGTTCTTGTGCAGACAACTGTTCTTTTGCTTC
CATAGCAGCAACAGATGCTTTGGGGCTAAAAGGCATGTCCTCTGACCTTGCAGGTGGTGG
ATTTTGCTCTTTTACAACATGTACATCCTTACTGGGCTGTGCTGTCACAGGGATGTCCTTGC
TGGACTGTTCTGCTATGGGGATATCTTCGTTGGACTGTTCTTCATGCTTAATTGCAGTATTA
GCATCCACATCAGACAGCCTGGTATAAACCAGAGTTGGTGGTTACTGATTGTAGCTGCTCTT
TGTCCACTTCATATGGCACAAGTATTTTCCTCAACATCCTGGCTCTGGGAAG
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13695.1

```
GAAATGTATATTTAATCATTCTCTTGAACGATCAGAACTCTRAAATCAGTTTTCTATAACAR
CATGTAATACAGTCACCGTGGCTCCAAGGTCCAGGAAGGCAGTGGTTAACACATGAAGAG
TGTGGGAAGGGGGGCTGGAAACAAAGTATTCTTTTCCTTCAAAGCTTCATTCCTCAAGGCCT
CAATTCAAGCAGTCATTGTCCTTGCTTTCAAAAGTCTGTGTGTGCTTCATGGAAGGTATAT
GTTTGTTGCCTTAATTTGAATTGTGGCCCAGGAAGGGTCTGGAGATCTAAATTCAGAGTAAG
AAAACCTGAGCTAGAACTCAGGCATTTCTCTTACAGAACTTGGCTTGCAGGGTAGAATGA
ANGGAAAGAAACTTAGAAGCTCAACAAGCTGAAGATAATCCCATCAGGCATTTCCCATAG
GCCTTGCAACTCTGTTCACTGAGAGATGTTATCCTG
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13695.2

```
AGTCTGGAGTGAGCAAACAAGAGCAACAAACAARRAGAAGCCAAAAGCAGAAGGCTCCA
ATATGAACAAGATAAAATCTATCTTCAAAGACATATTAGAAGTTGGGAAAAATAATTCATGT
GAACTAGACAAGTGTGTTAAGAGTGATAAGTAAAATGCACGTGGAGACAAGTGCATCCCC
AGATCTCAGGGACCTCCCCCTCCCTGTCACCTGCGGACTGAGAGGACAGGATAGTGCATG
TTCTTTGTCTCTGAATTTTTAGTTATATGTGCTGTAATGTTGCTCTGACGAAGCCCCTGGAA
AGTCTATCCCAACATATCCACATCTTATATTCCACAAATTAAGCTGTAGTATGTACCCTAA
GACGCTGCTAATTGACTGCCACTTCCCAACTCACGGGCGGCCTGCATTTTAGTAATGGGTCA
AATGATTCACTTTTTATGATGGTTTCCCAAGCTGCCTTCGCTTCTCTTCCCAACTGACAAATG
CCCAAGTTGAGAAAAATGATCATAATTTTAGCCATAAACCGAGCAATCGGCGACCCC
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13697.1

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TAGCTGTCTTCCTCACTCTTATGGCAATGACCCCATATCTTAATGGATTAAGATAATGAAA
GTGTATTTCTTACACTCTGTATCTATTACCAGAAGCTGAGGTGATAGCCCGCTTGTCATTGT
CATCCATATTCTGGCACTCAGGCGGCGAAATTTCTGGAATATTGCCAGGCAGCATGGCAGA
GCGGCACAGTGCATTCTGCCCGAATGCACATTGGCTCAGCCTGGGTAATGAGTGATATAC
ATTACCTCTGTTCACAACTCATTGCCCAGCACCAGTCACAAGCCCCACCAAAATACCAGAG
CCCAAGAAATGTAGTCCTCTTGATATGGTTTCCTGTGTCCCAACCCAAAATCTCATCTTGA
ATTGTAAGCTCCCATAATTCCCATGTCTTGTGGCACGGACCTGGTG
```

FIG. 1H

13697.2

```
ATCATGAGGATGTTACCAAAGGGATGGTACTAAACCATTTGTATTCGTCTGTTTTCACACT
GCTTTGAAGATACTACCTGAGACTGGGTAATTTATAAACAAAAGAGATTTAATTGACTCAC
AGTTCTGCATGGCTGAAGAGGCCTCAGGAAACTTACAGTCATGGTGGAAGGCAAAGGAGG
AGCAAGGCATGTCTTACATGTCAGTAGGAGAGAGAGCGAGAGCAGGAGAACCTGCCACTT
ATAAACCATTCAGATCTCATAACTCCCTATCATGAGAAAAACATGGAGGAAACCACCCTC
ATGATCCAATCACCTCCCGCCAGGTCCCTCCCTCGACACGTGGGGATTATAATTCAGGATT
AGAGGGACACAGAGACAAACCATATCATCATTCATGAGAAATCCACCCTCATAGTCCAAT
CAGCTCCTACCAGGCCCCACCTCCAACACTGGGGATTGCAATTCAACATGAGATTTGGATG
GGGACACAGATTCAAACCATATCATAC
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13699.1&2

```
CATGGCCTTTCTCCTTAGAGGCCAGAGGTGCTGCCCTGGCTGGGAGTGAAGCTCCAGGCAC
TACCAGCTTTCCTGATTTTTCCCGTTTGGTCCATGTGAAGAGCTACCACGAGCCCCAGCCTCA
CAGTGTCCACTCAAGGGCAGCTTGGTCCTCTTGTCCTGCAGAGGCAGGCTGGTGTGACCCT
GGGAACTTGACCCGGGAACAACAGGTGGCCCAGAGTGAGTGTGGCCTGGCCCCCTCAACCT
AGTGTCCGTCCTCCTCTCTCCTGGAGCCAGTCTTGAGTTTAAAGGCATTAAGTGTTAGATA
CAAGCTCCTTGTGGCTGGAAAAACACCCCTCTGCTGATAAAGCTCAGGGGGCACTGAGGA
AGCAGAGGCCCCTTGGGGGTGCCCTCCTGAAGAGAGCGTCAGGCCATCAGCTCTGTCCCTC
TGGTGCTCCCACGTCTGTTCCTCACCCTCCATCTCTGGGAGCAGCTGCACCTGACTGGCCAC
GCGGGGGCAGTGGAGGCACAGCCTCAGGCTGCCCGGGCTACCTGGCACCCTATGGCTTAC
AAAGTAGACTTGGCCCAGTTTCCTTCCACCTGAGCGGAGCACTCTGACTCCTAACAGTCTT
CCTTGCCCTGCCATCATCTGCGGTGCCTGGCTGTCAAGAAAGGCCGGGCATGCTTTCTAAA
CACAGCCACAGGAGGCTTGTACCGGCATCTTCCAGCTGCGGAAACAGTCTTAGATAAGTAA
GGTGACTTGCCTAAGCCCTCCCAGCACCTTTGATCTTGGAGTCTCACACCAGACTGCATCT
SAACAACTGGAACCGAAAAACATCCCTCAGTATAAAA
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13703.3

```
CCAGAACCTCCTTCTCTTTGGAGAATGCCGAGGCCTCTTGGAGACACAGAGGGTTTCACCT
TGGATGACCTCTAGAGAAATTGCCCAAGAAGCCCACCTTCTGGTCCCAACCTGCAGACCCC
ACAGCAGTCAGTTGGTCACGGCCTCCTGTAGAAGGTCACTTGGCTCCATTGCCTGCTTCCA
ACCAATGGGCAGGAGACAAGCCCTTTATTTCTCGCCCACCCATTCTCCTGTACCAGCACCT
CCGTTTTCAGTCAGYGTTGTCCACCAACGGTACCGTTTACACAGTCA
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13705.1

```
TGCATGTAGTTTTATTTATGTGTTTTSGTCTGGAAAACCAAGTGTCCCAGCAGCATGACTGA
ACATCACTCACTTCCCCTACTTGATCTACAAGGCCAACGCCGAGAGCCCACACCAGGATTC
CAAACACACTGCACGACAATATTGTGGATCCGCTGTCAGGTAAGTGTCCGTCACTGACCCA
RACCGTGTTACGTGGCACATGACTGTACAGTGCCACGTAACAGCACTGTACTTTTCTCCCA
TGAACAGTTACCTGCCATGTATCTACATGATTCAGAACATTTTGAACAGTTAATTCTGACA
CTTGAATAATCCCATCAAAAACCGTAAAATCACTTTGATGTTTCTAACGACAACATAGCAT
CACTTTACGACAGAATCATCTGGAAAAACAGAACAACGAATACATACATCTTAAAAAATG
CTGGGGTGGGCCAGCCACAGCTTCACGCCTGTAATCCCAGCACTTTGGGAGGCTTAAGCG
GGTG
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FIG. 11

13705.2

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TGGGGCGGAAAGAAGCCAAGGCCAAGGAGCTGGTGCGGCAGCTGCAGCTGGAGGCCGAG
GAGCAGAGGAAGCAGAAGAAGCGGCACAGTGTGTCGGGCCTGCACAGATACCTTCACTTG
CTGGATGGAAATGAAAATTACCCGTGTCTTGTGGATGCAGACGGTGATGTGATTTCCTTCC
CACCAATAACCAACAGTGAGAAGACAAAGGTTAAGAAAACGACTTCTGATTTGTTTTTGG
AAGTAACAAGTGCCACCAGTCTGCAGATTTGCAAGGATGTCATGGATGCCCTCATTCTGAA
AATGGCAAGAAATGAAAAAGTACACTTTAGAAAATAAAGAGGAAGGATCACTCTCAGAT
ACTGAAGCCGATGCAGTCTCTGGACAACTTCCAGATCCCACAACGAATCCCAGTGCTGGA
AAGGACGGGCCCTTCCTTCTGGTGGTGGAACANGTCCCGGTGGTGGATCTTGGAANGGAA
CCTGAANGTGGTGTACCCCGTCCAAGGCCGACCTTGGCCAC
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13707.4

```
TCCCGCGCTCGCAGGGCNCGTGCCACCTGCCYGTCCGCCCGCTCGCTCGCTCGCCCGCCGC
GCCGCGCTGCCGACCGYCAGCATGCTGCCGAGAGTGGGCTGCCCCGCGCTGCCGCTGCCG
CCGCCGCCGCTGCTGCCGCTGCTGCCCGCTGCTGCTGC
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13708.1&2

```
GGCGGGTAGGCATGGAACTGAGAAGAACGAAGAAGCTTTCAGACTACGTGGGGAAGAAT
GAAAAAACCAAAATTATCGCCAAGATTCACCAAACGGGACAGGGAGCTCCAGCCCGAGA
GCCTATTATTAGCAGTGAGGAGCAGAAGCAGCTGATGCTGTACTATCACAGAAGGACAAGA
GGACCTCAAGAGATTCGAAGAAAATCATGATGATGCCTATTTAAAACTCACCATGGCCGGA
TAACACTGCTTTGAAAAGACATTTTCATGGAGTGAAAGACATAAAGTGGAGACCAAGATG
AAGTTCACCAGCTGATGACACTTCCAAACAGATTAGCTCACCT
```

13709.1

```
TCTGAAGGTTAAATGTTTCATCTAAATACGGATAATGRTAAACACCTATAGCCATAGAGTTG
TTTGAGATTAAATGAGATAAATACATGTAAAATTATGTGCCTGGCATACACCAAGATTGTTG
TTGTTGTTGATGATGATGATGATCATCATAATATTTTTCTATCCCCAGTGCACAACTGCTTG
AACCTATTAGATAATCAATACATGTTTCTTGAACTGAGATCAATTTCCCCATGTTGTCTGAC
TGATCAAGCCCTACATTTTCTTCTACAGGAGATGACATTTGACCAAGATCTTAAAGAAAAT
CAGATGCCTTCACCTGACCACTGCTTGGTGATCCCATGGCACTTTGTACATCTCTCCATTAG
CTCTCATCTCACCAGCCCATCATTATTGTATGTGCTGCCTTCTGAAGCTTGCAGCTGGCTAC
CATCMGGTAGAATAAAAATCATCCTTTCATAAAATAGTGACCCTCCTTTTTTATTTGCATTT
CCCAAAGCCAAGCACCGTGGCANGGTAC
```

FIG. 1J

13709.2

TATGAAGAAGGGAAAAGAAGATAATTTGTGAAAGAAATGGGTCCAGTTACTAGTCTTTGA
AAAGGGTCAGTCTGTAGCTCTTCTTAATGAGAATAGGCAGCTTTCAGTTGCTCAGGGTCAG
ATTTCCTTAGTGGTGTATCTAATCACAGGAAACATCTGTGGTTCCCTCCAGTCTCTTTCTGG
GGGACTTGGGCCCACTTCTCATTTCATTTAATTAGAGGAAATAGAACTCAAAGTACAATTT
ACTGTTGTTTAACAATGCCACAAAGACATGGTTGGGAGCTATTTCTTGATTTGTGTAAAAT
GCTGTTTTTGTGTGCTCATAATGGTTCCAAAAATTGGGTGCTGGCCAAAGAGAGATACTGT
TACAGAAGCCAGCAAGAAGACCTCTGTTCATTCACACCCCCGGGGATATCAGGAATTGAC
TCCAGTGTGTGCAAATCCAGTTTGGCCCTATCTTCT

13712.1&2

TGAGGGACTGATTGGTTTGCTCTCTGCTATTCAATTCCCCAAGCCCACTTGTTCCTGCAGCG
TCCTCCTTCTCATTCCCTTTAGTTGTACCCTCTCTTTCATCTGAGACCTTTCCTTCTTGATGT
CGCCTTTTCTTCTTCTTGCTTTTTCTGATGTTCTGCTCAGCATGTTCTGGGTGCTTCTCATCT
GCATCATTCCTTTCAGATGCTGTAGCTTCTTCCTCCTCTTTCTGCCTCCTTTTCTTTTTCTTTT
TTTTGGGGGGCTTCCTCTCTGACTGCAGTTGACCGGCCCCAGGGTCCTGGCCTTTGAGACG
AGCCAGGAAGGCCTGCTCCTGGGCCTCTACGCGAGCAAGCTTGGCCTTCATTGTGATCCCA
AGACGGGCAGCCTTGTGTGCTGTTCGCCCCTCACAGGCTTGGAGCAGCATCTCATCAGTCA
GAATCTTTGGGGACTTGGACCCCTGCTTGTCGTCATCACTGCAGCTCTCCAAGTCTTTGTTT
GGCTTCTCTCCACCTGAACTCAATGTAGCCATCTTCACAAACTTCTGATACAGCAAGTTGG
GCTTGGGATGATTATAAACGGGTTGTCTCCTTAGAAAGGCTCCTTATCTGTACTCCATCCTG
CCCAGTTTCCACTACCAAGTTCCCCGCAGTCTTGTTGAAGAGCTCATTCCACCAGTGGTTT
GTGAACTCCTTGGCAGGGTCATGTCCTACCCCATGAGTGTCTTGCTTCAGYGTCACCCTGA
GAGCCTGAGTGATACCATTCTCCTTCCG

13714.1&2

GACAACATGAAATAAATCCTAGAGGACAAAATTAAACTCAATAGAGTGTAGTCTAGTTAA
AAACTCCAAAAATGAGCAAGTCTCCTCGGCAGTGCAGGAAGGGCTATACTATAAAATCCAAG
TGGCCCTCCTGATCTTAACAAGCTATGCTCATTATACACATCTCTGAACTGGACATACCAC
CTTTACGCAGGAAACAGGGCTTGCAAACTTCTAAGCGAAATTAACATGCACCACCCACATC
TAACCTACCTGCCGGGTAGCTACCATCCCTGCTTCGCTGAAATCAGTGCTC

13716.1&2

TTGGAATTAAATAAACCTGCAACACCCAAGGTGAAAGTTGGAGTGACATGTCTTCCATAT
CTATACCTTTGTGCACACTTGAATCGGAACTGTTTGGGTTTAGCGGCATCTTAGAGTTGATT
GATCGAAAAACCAGACAGGAACTCGTCGGAGGTCAAGTGGGGAAGTTCGTGAATGTGGA
ATAACTTACCTTTGTGCTCCACTTAAACCAGATGTGTTGCAGCTTTCCTGACATGCAAGGA
TCTACTTTAATTCCACACTCTCATTAATAAATTGAATAAAAGGGAATGTTTTGGCACCTGA
TATAATCTGCCAGGCTATGTGACAGTACGAAGGAATGGTTTCCCCTAACAAGCCCAATGC
ACTGGTCTGACTTTATAAATTATTTAATAAAAATGAACTATTATC

FIG. 1K

13718.2

AAACTGGACCTGCAACAGGGACATGAATTTACTGCARGGTCTGAGCAAGCTCAGCCCCTCT
ACCTCAGGGCCCCACAGCCATGACTACCTCCCCCAGGAGCGGGAGGGGTGAAGGGGGCCTG
TCTCTGCAAGTGGAGCCAGAGTGGAGGAATGAGCTCTGAAGACACAGCACCCAGCCTTCT
CGCACCAGCCAAGCCTTAACTGCCTGCCTGACCCTGAACCAGAACCCAGCTGAACTGCCCC
TCCAAGGGACAGGAAGGCTGGGGGAGGGAGTTTACAAACCCAAGCCATTCCACCCCCTCCC
CTGCTGGGGAGAATGACACATCAAGCTGCTAACAATTGGGGGAAGGGGAAGGAAGAAAA
CTCTGAAAACAAAATCTTGT

13722.3

CATGCGTTTCACCACTGTTGGCCAGGCTGGTCTCGAACTCCTGGCCTCAAGCAATCCACCC
GCCTCAGCCTCCAAAAGTGCTGGGATTACAGATGTGAGCCATGGCACCATGCCAAAAGGC
TATATTCCTGGCTCTGTGTGTTTCCGAGACTGCTTTTAATCCCAACTTCTCTACATTTAGATTA
AAAAATATTTTATTCATGGTCAATCTGGAACATAATTACTGCATCTTAAGTTTCCACTGAT
GTATATAGAAGGCTAAAGGCACAATTTTTATCAAATCTAGTAGAGTAACCAAACATAAAA
TCATTAATTACTTTCAACTTAATAACTAATTGACATTCCTCAAAAGAGCTGTTTTCAATCCT
GATAGGTTCTTTATTTTTTCAAAATATATTTGCCATGGGATGCTAATTTGCAATAAGGCGC
ATAATGAGAATACCCCAAACTGGA

13722.4

GTTGGACCCCCAGGGACTGCAAAGACACTTCTTGCCCGAGCTGTGGCCGGCAGAAGCTGAT
GTTCCTTTTTATTATGCTTCTGCATCCGAATTTGATGAGATGTTTGTGGGTGTGGGAGCCAC
CCGTATCAGAAATCTTTTAGGGAAGCAAAGGCGAATGCTCCTTGTGTTATATTTATTGAT
GAATTAGATTCTGTTGGTGCGAAGAGAATTGAATCTCCAATGCATCCATATTCAACGCAGA
CCATAAATCAACTTCTTGCTGAAATGGATGCTTTTAAACCCAATGAAGGAGTTATCATAAT
AGGAGCCACAAACTTCCCAGACGCCATTAGATAATGCCTTAATACCGTCCTGGTCGTTTTGA
CATGCAAGTTACAGTTCCAAGCCCAGATGTAAAAGGTCGAACAGAAATTTTGAAATGGTA
TCTCAATAAAATAAAGTTTGATCAATCCCGTTGATCCAGAAATTATAGCCTCGAGGTACTG
GTGCCTTTTCCGGAAGCACAGCTTGGGACAATCTT

13724+13698-13748

GCCTACAACATCCAGAAAGAGTCTACCCTGCACCTGGTGCTSCGTCTCAGAGGTGGGATGC
AGATCTTCGTGAAGACCCTGACTGGTAAGACCATCACTCTCGAAGTGGCAGCCGACTGACA
CCATTGAGAACGTCAAAGCAAAGATCCARGACAAGCAAGGCRTYCCTCCTGACCAGCAGA
GGTTGATCTTTCCCGGAAAGCCAGCTCGAAGATGGDCGCACCCTGTCTGACTACAACATCC
AGAAAGACTCYACCCTGCACCTGGTGCTCCGTCTCAGAGGTGGGATGCARATCTTCGTGA
AGACCCTGACTGGTAAGACCATCACCCTCGAGGTGGACCCCAGTGACACCATCGACAATG
TCAAGGCAAAGATCCAAGATAAGGAAAGGCATCCCTCCTGATCAGCAGAGGTTGATCTTTG
CTGGGAAACAGCTGGAAGATGCACGCACCCTGTCTGACTACAACATCCAGAAAGAGTCCA
CTCTGCACTTGGTCCTGCGCTTGAGGGCGGGTGTCTAAGTTTCCCCTTTTAAGGTTTCMAC
AAATTTCATTGCACTTTCCTTTCAATAAAGTTGTTGCATTCCC

FIG. IL

13730.1

GAACTGGGCTCCTGAGCCCAAGTCATGCCTTGTGTCCGCATCTGCCGTGTCACCTCTGTKCC
TGCCCCTCACCCCTCCCTCCTGGTCTTCTGAGCCAGCACCATCTCCAAATAGCCTATTCCTT
CCTGCAAATCACACACACATGCGGGCCACACATACCTGCTGCCCTGGAGATGGGGAAGTA
GGAGAGATGAATAGAGGCCCATACATTGTACAGAAGGAGGGGCAGGTGCAGATAAAAGC
AGCAGACCCAGCGGCAGCTGAGGTGCATGGAGCACGGTTGGGGCCGGCATTGGGCTGAGC
ACCTGATGGCCCTCATCTCGTGAATCCTCGAGGCAGCGCCACAGCAGAGGAGTTAAGTGG
CACCTGGGCCGAGCAGAGCAGGAGACTGAGGGTCAGAGTGGAGGCTAAGCTGCCCTGGA
ACTCCTCAATCTTGCCTGCCCCCTAGTATGAAGCCCCCTTCCTGCCCCTACAATTCCTGA

13732.1

ATGGATCTTACTTTGCCACCCAGGTTGGAGTGCAGTGCTGCAATCTTGGCTCACTGCAGCC
TTAACCTCCCAGGCTCAAGCTATCCTCCTGCCAAAGCCTTCCACATAGCTGGGACTACAGG
TACACNGCCACCACACCCAGCTAAAATTTTTGTATTTTTTGTAGAGACGGGATCTCGCCAC
GTTGCCCAGGCTGGTCCCATCCTGACCTCAAGCAGATCTGCCCACCTCAGCCCCCCAACGT
GCTAGGATTACAGGCGTGACCCACCGCACCCAGCCTTTGTTTTGCTTTTAATGGAATCACC
AGTTCCCCTCCGTGTCTCAGCAGCAGCTGTGAGAAATGCTTTGCATCTGTGACCTTTATGA
AGGGGAACTTCCATGCTGAATGAGGGTAGGATTACATGCTCCTGTTTCCCGGGGGTCAAG
AAAGCCTCAGACTCCAGCATGATAAGCAGGGTGAG

13732.2

ATAGGGGCTTTAAGCAGGGAATTCAGGTTCAATGAGGTCGTAAGGCCAGGCCTCTTATCC
AGTAAGACTGGGGTCCTTACATGAGAAAGAGACACCCGAGGTCCTTCTCTCTGCCGTGTG
AGGATGCATCAAGAAGGCGGCCGGTCTGCAAGCGAAGGAGAGGCCGCACCAGAAACCGAC
ACCTTCATCTTGGACTTGCAGCCTCTAGAACTGAGAAAATAACTGTCTGTTGGTTAAGCCA
CCCAGTTTGTAGTATTCTCTTATGGCTTCCTAAGCAGACTAACAAACAAACACCCAAAATT
AACTGATGGCTTCGCTGTCTTCTGTAAAAATTGCTATGAGAGAACTTTTCACTCACTGTTTT
GCAGTTTCTCCCTCAGTCCCTGGTTCTTTCTTCTCACATAATCCCAATTTCAATTTATAGTTC
ATGGCCCAGGCACAGTCATTCATCACGGCATCTCCTGAGCTAAACCAGCACCTGCTCTGCT
CACTTCTTGACTGGCTGCTCATCATCAGCCCTCTTGCAGACATTTCATTTCCTCCCGTGCCA
GGTACTTCACGCACCAAGCTCA

FIG. 1M

13735.1

GGATAATGAAGTTGTTTTATTTAGCTTGGACAAAAAGGCATATTCCTCTATTTTCTTATACA
ACAAATATCCCCAAAATAAAGCAAGCATATATATCTTGAATGTGTAATAATCCAGTGATA
AACAAGAGCAGTACTTTAAAAGAAAAAAAAAATATGTATTTCTGTCAGGTTAAAATGAGAA
TCAAAACCATTTACTCTGCTAACTCATTATTTTTTTGCTTTCTTTTTGGTTAAGAGAGGCAAT
GCAATACACTGAAAAAGGTTTTTATCTTATCTGGCATTGGAATTAGACATATTCAAACCCC
AGCCCCCATTTCCAAACTTTAAGACCACAAACAAGTAATTTACTTTTCTGAACATTGGTTTT
TTCTGGAAAATGGGAATTATAAAATAGACTTTGCAGACTCTTATGAGATTAAATAAGATA
ATGTATGAAATTCTTTCTTCTTTTTTTACTTCTTTTTCCTTTTTGAGATGGAGTCTCACCCCGT
CACCCAGGCTGGAGTACAGTG

13735.2

CCACTGCACTCCAGCCTGGGTGACGGAGTGAGACTCTGTCTCAAAAAAACAAACAAACAA
ACAAACAAAAAACTGAAAAGGAAATAGAGTTCCTCTTTCCTCATATATGAATATATTATTT
CAACAGATTGTTGATCACCTACCATATGCTTGGTATTGTTCTAATTGCTGGGGATACAGCA
AGAGGTTCTGCAGAACTTCATGGACCATGAAACTAAATAAACAAAGTTAATTTCAAGGCC
AGGCATGGTTGCTCACACCTTTAGTCCCAGCACTTTGGGAGGCTGAGGCAGGTGGATCACT
TGGGCCCAGGAGTTCAAGGCTGCAGTCAGCCAAGATTGTGCCACTACTCTCCAGGCTGGG
CAACAGAGCAAGACCCTGTCTCACGCGGAACAAAAAGTTAATTTCAGATTTTTGTTAAGTG
CTGTAAAGGAAGTAAATAGGTTGATATTCAAGAGAGCACCTGAAGGCCAGGCGTCGTGGC
TCACGCCTGTGGTCTAACGCTTTGGGAAGCCCCGAGCGGGCGGATCACAAGGTCAGGAGAA
TTTTGGCCAGGCATGGTG

13736.1

AGAATCCATTTATTGGGTTTTAAACTAGTTACACAACTGAAATCAGTTTGGCACTACTTTA
TACAGGGATTACGCCTCTGTATCCCGACACTTAAATACTGTACCAGGACCACTGCTGTGCT
TAGGTCTCTATTCACTCATTCAGCCATGTAGATACTAAAAATATACTGTAGTGTTCCTTTAA
GGAAGACTGTACAGCCGTGTGTTGCAAGATGACATTCACCAATTTGTGAATTATTTCAACCC
AGAAGATACCTTTCACTCTATAAAACTTCTCATAGGCAAACATGTGGTGTTAGCATTGAGAG
ATGCACACAAAAATGTTACATAAAAGTTCAGACATTCTAATGATAAGTGAACTGAAAAAA
AAAAAAACCCCACATCTCAATTTTTGTAACAAGATAAAGAAAATAATTTAAAAACACAAA
AAATGGCATTCAGTGGGTACAAAGCC

13737.1&2

CAAATATTTAATATAAATCTTTGAAACAAGTTCAGAAGAAATAAAAATCAAAGTTTGCAA
AAACGTGAAGCATTAACTTAATTGTCAAATATTCCTCATTGCCCCAAATCAGTATTTTTTTTA
TTTCTATGCAAAAGTATGCCTTCAAAACTTCTTAAAATGATATATGATATGATACACAAACCA
GTTTTCAAATAGTAAAGCCAGTCATCTTGCAATTGTAAGAAATAGGTAAAAGCATTATAAG
ACACCTTACACACACACACACACACACACACACACGTGTGCACGCCAATGACAAAAAAC
AATTTGGCCTCTCCTAAAAATAAGAACATGAAGACCCTTAATTGCTGCCAGGAGGGAACAC
TGTGTCACCCCTCCCTACAATCCAGCTACTTTCCTTTAATCCAATAGCAAATCTGGGCATAT
TTGAGAGGAGTGATTCTGACAGCCCACSCTTGAAATCCTGTGGGGAACCATTCATGTCCACC
CACTGGTGCCCTGAAAAAATGCCAATAATTTTTCGCTCCCACTTCTGCTGCTGTCTCTTCCA
CATCCTCACATAGACCCCAGACCCGCTGCCCCCTGGCTGGGCATCGCATTGCTGGTAGAGC
AAGTCATAGGTCTCGTCTTTGACCTCACAGAAGCGATACACCAAATTGCCTGGTCGGTCAT
TGTCATAACCAG

FIG. 1N

13738.1

TTTGACTTTAGTAGGGGTCTGAACTATTTATTTTACTTTGCCMGTAATATTTARACCYTATA
TATCTTTCATTATGCCATCTTATCTTCTAATGBCAAGGGAACAGWTGCTAAMCTGGCTTCT
GCATTWATCACATTAAAAATGGCTTTCTTGGAAAATCTTCTTGATATGAATAAAGGATCTT
TTAVAGCCATCATTTAAAGCMGGNTTCTCTCCAACACGAGTCTGCTSASGGGGGGKGAGCT
GTGAACTCTGGCTGAAGGCTTTCCCATACACACTGCAATGACMTGGTTTCTGACCAGBGTG
AGTTA

13738.2

AGAGAAGCCCCATAAATGCAATCAGTGTGGGAAGGCCTTCAGTCAGAGCTCAAGCCTTTT
CCTCCATCATCGGGTTCATACTGGAGAGAAACCCTATGTATGTAATGAATGCGGCAGAGCC
TTTGGTTTTAACTCTCATCTTACTGAACACGTAAGGATTCACACAGGAGAAAAACCCTATG
TTTGTAATGAGTGCGGCAAAGCCTTTCGTCGGAGTTCCACTCTTGTTCAGCATCGAAGAGT
TCACACTGGGGAGAAGCCCTACCAGTGCGTTGAATGTGGGAAAGCTTTCAGCCAGAGCTC
CCAGCTCACCCTACATCAGCCGAGTTCACACTGGAGAGAAGCCCTATGACTGTGGTGACTG
TGGGAAGGCCTTCAGCCGGAGGTCAACCCTCATTCAGCATCAGAAAGTTCACAGCGGAGA
GACTCGTAAGTGCAGAAAACATGCTCCAGCCTTTGTTCATGGCTCCAGCCTCACAGCAGAT
GGACAGATTCCCACTGCAGAGAAGCACGGCAGAAACCTTTAACCATGGTGCAAATCTCATT
CTGCGCTGGACAGTTC

13739.1&2

GAGACAGGCTCTCACTTTGTCACCCAGGCTCGAATGCAGTGGTGCGATCTTACGTAGCTCA
CTGCAGCCCTGACCTCCTGCACTCAAACAATTCTCCTGCCTCAGCCCTGCAAGTAGCTGGG
ACTGTGGGTGCATGCCACCATGCCTGCCTAACTTTGTAGTTTTTGTAAAGATGGGGTTTT
GCCATGTTGCACATCCTGGTCTTGAACTCCTGACCTCAAACGATCTGCCCACCTCGGCCTC
CCAGAATGTTGGGATTACACGGCGTAAACCACCACGCCTGGCCCCATTAGGGTATTCTTAGC
ATCCACTTGCTCACTGACATAATCATAAGAGATGATAAGCACTGCAAGAAAAAAATTTTT
ACTAGGCTTTGGCATATTTTTTCCTTTTCAGCTTTATACAGACGATTGGATCTTTAGTTTTTC
CTTTAACTCGATAATAAAACATTGAAAGCAAATAAGTTTACCTGAGATTCACAGAGATAAC
CGGCATCACTCCCTTGCTCAATTCCAGTCTTTACCACATCAATTATTTTCAGAGGTGCAGGA
TAAAGGCCTTTAGTCTGCTTTCGCACTTTTTCTTCCACTTTTTGTAAACCTGTTGCCTGACA
AATGGAATTGACAGCCGTATCCCATGACTATTCCATTTGTCAGGCATACGCTGTCAATTTTT
CCACCAATCCCTTGTCTCTCTTTGGAGAGATCTTCTTATCAGCTAGTCCTTTGGCAAAAGTA
ATTGCAACTTCTTCTAGGTATTCTATTGTCCGTTCCACTGCTGGAACCCCTGGGACCAGGA
CTAAAACCTCCAG

13741.1

ATCTCATATATATATTTCTTCCTGACTTTATTTGCTTGCTTCTGNCACGCATTTAAAAATATC
ACAGAGACCAAAATAGAGCGGCTTTCTGGTGGAACGCATGGCAGTCACAGCACAAAATAC
AAAACTAGGGGGCTCTGTCTTCTCATACATCATACAATTTTCAAGTATTTTTTTTATGTACA
AAGAGCTACTCTATCTGAAAAAAAATTAAAAAATAAATGAGACAAGATAGTTTATGCATC
CTAGCAAGAAAGAATGGGAAGAAAGAACGCGGCCAGTTGCCTACAAATTCCTGTCCCTGT
·TCCCAGCGACCACTACCTTCCTGCCACTGAGTTCCCCCACAGCCTCACCCATCATGTCACA
GGGCAAGTGCCAGGGTAGCTGGGGACCACTGGAGACACAGGAACCACCAACATACTTTGCC
CTGGAAGATAAGGAGAAAGTCTCAGAAACACACTGGTCGGGAAGCAATCCCACNGGCCGT
GCCCCANGAGCTTCCCACCTGCTGCTGCCTCCCTGGGTGGCTTTGCGAACACCTTGGGCAG
GCCCTTTTTGGCTGCGGNCCAACTGGGCCTTTGCCCCCGTGTGGAAAC

FIG. 10

13742.1

AAACATTGAGATGGAATGATAGGGTTTCCCAGAATCAGGTCCATATTTTAACTAAATGAA
AATTATGATTTATAGCCTTCTCAAATACCTGCCATACTTGATATCTCAACCAGAGCTAATTT
TACCTCTTTACAAATTAAATAAGCAAGTAACTGGATCCACAATTTATAATACCTGTCAATT
TTTTCTGTATTAAACCTCTATCATAGTTTAAGCCTATTAGGGTACTTAATCCTTACAAATAA
ACAGGTTTAAAATCACCTCAATAGGCAACTGCCCTTCTGGTTTTCTTCTTTGACTAAACAAT
CTGAATGCTTAAGATTTTCCACTTTGGGTGCTAGCAGTACACAGTGTTACACTCTGTATTCC
AGACTTCTTAAATTATAGAAAAAGGAATGTACACTTTTTGTATTCTTTCTGAGCAGGGCCG
GGAGGCAACATCATCTACCATGGTAGGGACTTGTATGCATGGACTACTTTA

14351.1

ACTCTGTCGCCCAGGCTGGAGCCCABTGGMGCGATCTCGACTCCCTGCAAGCTMCGCCTC
ACAGGWTCATGCCATTCTCCTGCCTCAGCATCTGGAGTAGCTGGGACTACAGGCGCCAGC
CACCATGCCCAGCTAATTTTT

14351.2

ACCTTAAAGACATAGGAGAATTTATACTGGGAGAGAAAGCTTACAAATGTAAGGTTTCTG
ACAAGACTTGGGAGTGATTCACACCTGGAACAACATACTGGACTTCACACTCGGABAGAAA
CCTTACAAGTGTAATGACTGTGGCAAAGCCTTTGGCAAGCAGTCAACACTTATTCACCATC
AGGCAATTCA

14354.2

AGTCACGATCATGATGGCTCAGTTTCCCACACCGATGAATGGACGGGCCAAATATGTGGGC
TATTACATCTGAAGAACCTACTAAGCATGATAAACAGTTTGATAACCTCAAACCTTCAGGA
GGTTACATAACAGGTGATCAAGCCCGTACTTTTTCCTACAGTCAGGTCTGCCGGCCCCGG
TTTTAGCTGAAATATGGCCCTTATCAGATCTGAACAAGGATGGGAAGATGGACCAGCAAG
CCTCCCTCCTATCATGAAACAACTCCCTATGTTCTCTCCACTAATCTCTGCTCGTTTTGGGA
TGGGAAGCATGCCCAATCTGTCCATTCATCAGCCATTGCCTCCAGTTGCACCTATAGCAAC
ACCCTTGTCTTCTGCTACTTCAGGGACCAGTATTCCTCCCTAATGATGCCTGCT

14354.1

CTTTCGATTTCCTTCAATTTCTCACGTTTGATTTTATGAAGTTGTTCAAGGGCTAACTGCTG
TGTATTATAGCTTTCTCTGAGTTCCTTCAGCTGATTGTTAAATGAATCCATTTCTGAGAGCT
TAGATGCAGTTTCTTTTTCAAGAGCCATCTAATTGTTCTTAAGTCTTTGGCATAATTCTTCC
TTTTCTGATGACTTCTATGAAGTAAAACTGATCCCTGAATCAGGTGTGTTACTGAGCTGCAT
GTTTTTAATTCTTTCGTTTAATACCTGCTTCTCAGGGACCAGATAGATAAGCTTATTTTGAT
ATTCCTTAAGCCTCTTGGTGAAGTTGTTCGATTTCCATAATTTCCAGGTCACACTGGTTATCC
CAAACTTCT

FIG. 1P

16431.1.2

GTGGAGGTGAAACGGAGGCAAGAAAGGGGGCTACCTCAGGAGCGAGGGACAAAGGGGGC
GTGAGGCACCTAGGCCGCGGCACCCCGGCGACAGGAAGCCGTCCTGAACCGGGCTACCGG
GTAGGGGAAGGGCCCGCGTAGTCCTCGCAGGGCCCCAGAGCTGGAGTCGGCTCCACAGCC
CCGGGCCGTCGGCTTCTCACTTCCTGGACCTCCCCGGCGCCCGGGCCTGAGGACTGGCTCG
GCGGAGGGAGAAGAGGAAACAGACTTGAGCAGCTCCCCGTTGTCTCGCAACTCCACTGCC
GAGGAACTCTCATTTCTTCCCTCGCTCCTTCACCCCCCACCTCATGTAGAAAGGTGCTGAA
GCGTCCGGAGGGAAGAAGAACCTGGGCTACCGTCCTGGCCTTCCCMCCCCCTTCCCGGGG
CGCTTTGGTGGGCGTGGAGTTGGGCGTTGGGGGGGTGGGTGGGGGTTCTTTTTTGGAGTGCT
GGGGAACTTTTTTCCCTTCTTCAGGTCAGGGGAAAGGGAATGCCCAATTCAGAGAGACAT
GGGGGCAAGAAGGACGGGAGTGGAGGAGCTTCTGGAACTTTGCAGCCGTCATCGGGAGG
CGGCAGCTCTAACAGCAGAGAGCGTCACCGCTTGGTATCGAAGCACAAGCGGCATAAGTC
CAAACACTCCAAAGACATGGGGTTGGTGACCCCCGAAGCAGCATCCCTGGGCACAGTTAT
GCCTTCAAACTAGACCGAAGGGAGAACGACGAACGTCGTGGATCAGATCGGAGCGACCGC
CTGCACAAACATCGTCACCACCAGCACAGGCGTTCCCGGGACTTACTAAAAGCTAAACAG
ACCG

16432-1

GACATGTTTGCCTGCACGGGACCACAGACAAATGGGATTAGCCAGTGCTCACTGTTCTTTAT
GCTTCCAGAGAGGATGGGCACAGCTCTCAGGTCAGAATCCAGGCTGAGAAGGCCATGCTG
GTTGGGGGCCCCCGAAGCACGGTCCCGATCCTCCCTGGCATCAGCGTAGACCCGCTGCTC
AGGCTTGGGGTACCAAACTCATGCTCTGTACTGTTTTGGCCCCATGCGGTGAGAGGAAAAC
CTAGAAAAAGATTGGTCGTGCTAAGGAATCAGCTGCCCCCTCATCCTCCGCATCCAATGCT
GGTGACAACATATTCCCTCTCCCAGCACACAGACTCGGTGACTCCACACTGGGCTGACTGG
CCTCTGGAGGCTCGTGGCCTAAGCCCAGGGCTCCGTAAGGCTGATCGGCTGAACTGGCTGG
GGTGAGGGTTTCTGACCCTTCGCTTCCCATCCCATAAACCGCTGTCAATGAGCTCACACTGT
GGTCA

16432-2

GATGGCATGGTCGTTGCTAAAGTGCCTGCTGGGATGGAGCACTTCCTCCTGTGAGCCCAGG
GGACCCGCCTGTCCCTGGAGCTTGGGGCAAGGAGGGAAGAGTGATACCAGGAAGGTGGG
GCTGCAGCCAGGGCCCAGAGTCAGTTCAGGGCAGCTGGTCCTCGGCCCTCAAAGCTCCTCCG
GGGACTGCTCACGAGTGATCGTGCCCTGGAGTTTGCCCCAACTTCCCTGGCCACCCTGGAA
GGTGCCTGCTGCTCCAGCCCTCTAGCCTGGGCTGATGGGTTTCTCCAGGACACAAGTATC
ATTAAAGCCACCCTCTCCTCAGCTTGTCAGCCCGCACATGTGGGACAGGCTGTGCTCACAA
CCCCCTCGCCTGCCCTGCCCTCCATCAGGACGGAGCCAGTGGAACTTCGGAAAGCTCCCAG
CATCTCAGCAGCCCTCAAAAGTCGTCCTGGGCCAAGCTCTGGTTCTCCTGACTGGAGGTCA
TCTGGGCTTGGCCTGCTCTCTCTCGC

17184-3

TAAAAAAGTGTAACAAAGGTTTATTTAGACTTCTTCATGCCCCCAGATCCAGGATGTCTA
TGTAAACCGTTATCTTACAAAGAAAGCCACAATATTTCGTATAAACTAAGTCACTGACTTGC
TTAACTGAAATACCGTCCATCCAAAAGTGCGTTAAGGTAAAACTACCTGACGATATTGGC
GGGCATCCTGCAGTTTGGACTGCTTGCCCGGGTTTGTCCAGGGCTTCCGGGTCTGTTCTTGGC
ACTCATGGGGACAGGCATCCTGCTCGTCTGTGCGGGCCCCGCTGGAGCCCTTACGTGAAGCT
GAAGGTATCGACCSTACGCGGCTCTAGGGCAGTGGGACCTTCATCCGGAACTAACAAGGG
TCGCGGACACGCCTCTTGCGCCTATGTCGG

FIG. 1Q

17184.4

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CAAGCGTTCCTTTATGGATGTAAATTCAAACAGTCATGCTGAGCCATCCCGGGCTGACAGT
CACGTTWAAGACACTAGGTCGGGCGCCACAGTGCCACCCAAGGAGAAGAAGAATTTGGA
ATTTTTCCATGAAGATGTACGGAAATCTGATGTTGAATATGAAAATGGCCCCCAAATGGAA
TTCCAAAAGGTTACCACAGCGGCTGTAAGACCTAGTGACCCTCCTAAGTGGGAAAGAGGA
ATGGAGAATAGTATTTCTGATGCATCAAGAACATCAGAATATAAAACTGAGATCATAATG
AAGGAAAATTCCATATCCAATATCAGTTTACTCAGAGACAGTAGAAACTATTCCCAGG
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17185.1

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TAGGAATAACAAATGTTTATTCAGAAATGGATAAGTAATACATAATCACCCTTCATCTCTT
AATGCCCCTTCCTCTCCTTCTGCACAGGAGACACAGATGGGTAACATAGAGGCATGGGAA
GTGGAGGAGGACACAGGACTAGCCCACCACCTTCTCTTCCCGGTCTCCCAAGATGACTGCT
TATAGAGTGGAGGAGGCAAACAGGTCCCCTCAATGTACCAGATGGTCACCTATAGCACCA
GCTCCAGATGGCCACGTGGTTCCAGCCTGGACTCAATGAAACTCTGTGACAACCAGAAGAT
ACCTGCTTTGGGATGAGAGCGAGGATAAAGCCATGCAGGGAGGATATTTACCATCCCTAC
CCTAAGCACAGTGCAAGCAGTGAGCCCCCGGGCTCCCAGTACCTGAAAAACCAAGGCCTAC
TGNCTTTTGGATGCTCTCTTGGGCCACG
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17188.2

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AAGCCTCCTGCCCTGGAAATCTGGAGCCCCTTGGAGCTGACCTGGACGGGGCAGGGACGG
GCTGAGAGGCAAGACCGTCTCCCTCCTGCTGCACCTGCTTCCCCAGCAGCCACTGCTGGGC
ACAGCAGAAACGCCACCACAGAAAATGGGAGCCGAGACTCCTTAGCCCTGGAGCTGAGG
CTGCCTCTCGGCTGACCCGCTGCCTGTACGTGGCCAGAACTCGGCGTTGGCATCTGGCATCC
ATTTGAGCCCAGGGTGGAGGAAACGGAGCCCAACAGACGAAAACCTATTCCTGCTGTGAC
AACACAGCCCTTGTCCCACGCAGCCTAAGTGCAGGCAGCGTGATGAAGTCAGGCAGCCAG
TCGCGGGAGGACGAGGTAACTCAGCAGCAATCTCACCTTGTAGCCTATGCGGCTCAATGGCC
CGGAGGGGCAGCAACCCCCCGCACACGTCAGCCAACAGCAGTGCCTCTGCAGGCACCAAG
AGAGCGATGATGGACTTGAGCGCCGTGTTC
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17190.1

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GTTTGGCAGAAGACATGTTTAATAACATTTCATATTTAAAAAATACACCAACAATTCTCT
ATCTGTCCACCATCTTGCCTTGCCCTTCCTGGGGCTGAGGCAGACAAAGGAAAGGTAATGA
GGTTAGGGCCCCCAGGCGGCCTAAGTGCTATTGGCCTGCTCCTGCTCAAAGAGAGCCATA
GCCAGCTFGGCACGGCCCCCTAGCCCCTCCAGCTTGCTGAGGCGGCAGCGGTGGTACAGT
TCTTCACTGAGCCGTGGGCTCCAGTCTCGCACGGAGAACTTCTGCACCAGCCCTGCCTCTA
CGGCCCGAAAGAGGTGGACCCCTGACAACCGGAGGAAAACATCCATCACCTCCAGCCCCT
GTACTCAGCGTTGTAGAAGCAGCCCTCCGCAGAAGCCTGCCCGGTCAAATCTCCCCGCTATA
GGAGCCCCCCGGGAGGGGTCAGCACC
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FIG. 1R

17190.2

CAAGTTGAACGTCAGGCTTGGCAGAGGTGGAGTGTAGATGAAAACAAAGGTGTGATTATG
AAGAGGATGTGAGTCCTTTGGGTGTAGGAGAGAAAGGCTGTTGAGCTTCTATTTCAAGAT
ACTTTTACCTGTGCAAAAAGCACATTTTCCACCTCCTTCTCATGGCATTTGTGTAAGGTGAG
TATGATTCCTATTCCATCTGCATTTTAGAGGTGAAGAATAACGTACAAGGGATTCAGTGAT
TAGCAAGGGACCCCTCACTAAGTGTTGATGGAGTTAGGACAGAGCTCAGCTGTTTGAATCT
CAGAGCCCAGGCAGCTGGAGCTGGGTAGGATCCTGGAGCTGGCACTAATGTGAGGTGCAT
TCCCTCCAACCCAGGCTCAGATCCGGAACCTGACCGTGCTGACCCCCGAAGGGGAGGCAG
GGCTGAGCTGGCCCGTTGGGCTCCCTGCTCCTTTCACACCACACTCTCGCTTTGAGGTGCTG
GGCTGGGACTACTTCACAGAGCAGC

17191.2&89.2

TGGCCTGGGCAGGATTGGGAGAGAGGTAGCTACCCGGATGCAGTCCTTTGGGATGAAGAC
TATAGGGTATGACCCCATCATTTCCCCAGAGGTCTCGGCCTCCTTTGGTGTTCAGCAGCTG
CCCCTGGAGGAGATCTGGCCTCTCTGTGATTTCATCACTGTGCACACTCCTCTCCTGCCCTC
CACGACAGGCTTGCTGAATGACAACACCTTTGCCCAGTGCAAGAAGGGGGTGCGTGTGGT
GAACTGTGCCCGTGGAGGGATCGTGGACGAAGGCGCCCTGCTCCGGGCCCTGCAGTCTGG
CCAGTGTGCCGGGGCTGCACTGGACGTGTTTACGGAAGAGCCGCCACGGGACCGGGCCTT
GGTGGACCATGAGAATGTCATCAGCTGTCCCCACCTGGGTGCCAGCACCAAGGAGGCTCA
GAGCCGCTGTGGGGACGAAATTGCTGTTCAGTTCGTGGACATGGTGAAGGGGAAATCTCT
CACGGGGGTTGTGAATGCCCACGCCCTT

FIG. 1S

AGCCAGATGGCTGAGAGCTGCAAGAAGAAGTCAGGATCATGATGGCTCAGTTTCCCACAG
CGATGAATGGAGGGCCAAATATGTGGGCTATTACATCTGAAGAACGTACTAAGCATGATA
AACAGTTTGATAACCTCAAACCTTCAGGCACGTTACATAACAGGTGATCAAGCCCGTACTTT
TTTCCTACAGTCAGGTCTGCCGGCCCCGGTTTTAGCTGAAATATGGGCCTTATCAGATCTG
AACAAGGATGGGAAGATGGACCAGCAAGAGTTCTCTATAGCTATGAAACTCATCAAGTTA
AAGTTGCAGGGCCAACAGCTGCCTGTAGTCCTCCCTCCTATCATGAAACAACCCCCTATGT
TCTCTCCACTAATCTCTGCTCGTTTTGGGATGGGAAGCATGCCCAATCTGTCCATTCATCAG
CCATTGCCTCCAGTTGCACCTATAGCAACACCCTTGTCTTCTGCTACTTCAGGGACCAGTAT
TCCTCCCCTAATGATGCCTGCTCCCCTAGTGCCTTCTGTTAGTACATCCTCATTACCAAATG
GAACTGCCAGTCTCATTCAGCCTTTATCCATTCCTTATTCTTCTTCAACATTGCCTCATGCA
TCATCTTACAGCCTGATGATGGGAGGATTTGGTGGTGCTAGTATCCAGAAGGCCCAGTCTC
TGATTGATTTAGGATCTAGTAGCTCAACTTCCTCAACTGCTTCCCTCTCAGGGAACTCACCT
AAGACAGGGACCTCAGAGTGGGCAGTTCCTCAGCCTTCAAGATTAAAGTATCGGCAAAAA
TTTAATAGTCTAGACAAAGGCATGAGCGGATACCTCTCAGGTTTTCAAGCTAGAAATGCCC
TTCTTCAGTCAAATCTCTCTCAAACTCAGCTAGCTACTATTTGGACTCTGGCTGACATCGAT
GGTGACGGACAGTTGAAAGCTGAAGAATTTATTCTGGCGATGCACCTCACTGACATGGCC
AAAGCTGGACAGCCACTACCACTGACGTTGCCTCCCGAGCTTGTCCCTCCATCTTTCAGAG
GGGGAAAGCAAGTTGATTCTGTTAATGGAACTCTGCCTTCATATCAGAAAACACAAGAAG
AAGAGCCTCAGAAGAAACTGCCAGTTACTTTTGAGGACAAACGGAAAGCCAACTATGAAC
GAGGAAACATGGAGCTGGAGAAGCGACGCCAAGTGTTGATGGAGCAGCAGCAGAGGGAG
GCTGAACGCAAAGCCCAGAAAACAGAAGGAAGAGTGGGAGCGGAAACAGAGAGAACTGC
AAGAGCAAGAATGGAAGAAGCAGCTGCAGTTGGAGAAACGCTTGGAGAAACAGAGAGAG
CTGGAGAGACAGCGGCAGCAAGAGAGCCAGAAAGGAGATAGAAAGACGAGACGCAGCAA
AACAGGAGCTTGACAGACAACGGCCGTTTAGAATGGGAAAGACTCCGTCGGCAGGAGCTGC
TCAGTCAGAAGACCAGGGAACAAGAAGCACATTCTCAGGCTGACCTCCAGAAAGAAAAGT
CTCCACCTCGAACTGGAAGCACTGAATCGAAAACATCACCAGATCTCAGGCAGACTACAA
GATGTCCAAATCAGAAAGCAAACACAAAAGACTGAGCTAGAACTTTTGGATAAACAGTGT
GACCTGGAAATTATGGAAATCAAACAACTTCAACAAGAGCTTAAGGAATATCAAAATAAG
CTTATCTATCTGGTCCCTTCAGAACCCAGCTATTAAACGAAAGAATTAAAAAACATGCAGCCTCA
GTAACACACTTGATTCACGGATCACTTTACTTCATAAAAAGTCATCAGAAAAGGAAGAAT
TATGCCAAAAGACTTAAAAGAACAATTAGATGCTCTTGAAAAAGAAACTGCATCTAAGCTCT
CAGAAATGGATTCATTTAACAATCAGCTGAAGCAACTCAGAGAAAGCTATAATACACAGC
AGTTAGCCCTTGAACAACTTCATAAAAATCAAACGTGACAAATTGAAGGAAATCGAAAGAA
AAAGATTAGAGCCAAAAAAAAAAAAAAAAA

FIG. 2A

ATGGCAGTGACATTCACCATCATGGGAACCACCTTCCCTTTTCTTCAGGATTCTCTGTAGTG
GAAGAGAGCACCCAGTGTTGGGCTGAAAACATCTGAAAGTAGGGAGAAGAACCTAAAAT
AATCAGTATCTCAGAGGGCTCTAAGGTGCCAAGAAGTCTCACTGGACATTTAAGTGCCAA
CAAAGGCATACTTTCGGAATCGCCAAGTCAAAACTTTCTAACTTCTGTCTCTCTCAGAGAC
AAGTGAGACTCAAGAGTCTACTGCTTTAGTGGCAACTACAGAAAACTGGTGTTACCCAGA
AAAACAGGAGCAATTAGAAATGGTTCCAATATTTCAAAGCTCCGCAAACAGGATGTGCTT
TCCTTTGCCCATTTAGGGTTTCTTCTCTTTCCTTTCTCTTTATTAACCACTA

FIG. 2B

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ATATCTAGAAGTCTGGAGTGAGCAAACAAGAGCAAGAAACAAAAAGAAGCCAAAAGCAG
AAGGCTCCAATATGAACAAGATAAATCTATCTTCAAAGACATATTAGAAGTTGGGAAAAT
AATTCATGTGAACTAGACAAGTGTGTTAAGAGTGATAAGTAAAATGCACGTGGAGACAAG
TGCATCCCCAGATCTCAGGGACCTCCCCCTGCCTGTCACCTGGGGAGTGAGAGGACAGGAT
AGTGCATGTTCTTTGTCTCTGAATTTTTAGTTATATGTGCTGTAATGTTGCTCTGAGGAAGC
CCCTGGAAAGTCTATCCCAACATATCCACATCTTATATTCCACAAATTAAGCTGTAGTATG
TACCCTAAGACGCTGCTAATTGACTGCCACTTCGCAACTCAGGGGCGGCTGCATTTTAGTA
ATGGGTCAAATGATTCACTTTTTATGATGCTTCCAAAGGTGCCTTGGCTTCTCTTCCCAACT
GACAAATGCCAAAGTTGAGAAAAATGATCATAATTTTAGCATAAACAGAGCAGTCGGCGA
CACCGATTTTATAAATAAACTGAGCACCTTCTTTTTAAACAAACAAATGCGGGTTTATTTCT
CAGATGATGTTCATCCGTGAATGGTCCAGGGAAGGACCTTTCACCTTGACTATATGGCATT
ATGTCATCACAAGCTCTGAGGCTTCTCCTTTCCATCCTGCGTGGACAGCTAAGACCTCAGT
TTTCAATAGCATCTAGAGCAGTGGGACTCAGCTGGGGTGATTTCGCCCCCCCATCTCCGGGG
GAATGTCTGAAGACAATTTTGTTACCTCAATGAGGGAGTGGAGGAGGATACAGTGCTACT
ACCAACTAGTGGATAAAGGCCAGGGATGCTGCTCAACCTCCTACCATGTACAGGACGTCTC
CCCATTACAACTACCCAATCCGAAGTGTCAACTGTGTCAGGACTAAGAAACCCTGGTTTTG
AGTAGAAAAGGGCCTGGAAAGAGGGGAGCCAACAAATCTGTCTGCTTCCTCACATTAGTC
ATTGGCAAATAAGCATTCTGTCTCTTTGGCTGCTGCCTCAGCACAGAGAGCCAGAACTCTA
TCGGGCACCAGGATAACATCTCTCAGTGAACAGAGTTGACAAGGCCTATGGGAAATGCCT
GATGGGATTATCTTCAGCTTGTTGAGCTTCTAAGTTTCTTTCCCTTCATTCTACCCTGCAAG
CCAAGTTCTGTAAGAGAAATGCCTGAGTTCTAGCTCAGGTTTTCTTACTCTGAATTTAGATC
TCCAGACCCTTCCTGGCCACAATTCAAATTAAGGCAACAAACATATACCTTCCATGAAGCA
CACACAGACTTTTGAAAGCAAGGACAATGACTGCTTGAATTGAGGCCTTGAGGAATGAAG
CTTTGAAGGAAAAGAATACTTTGTTTCCAGCCCCCTTCCCACACTCTTCATGTGTTAACCAC
TGCCTTCCTGGACCTTGGAGCCACGGTGACTGTATTACATGTTGTTATAGAAAACTGATTTT
AGAGTTCTGATCGTTCAAGAGAATGATTAAATATACATTTCCTA
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FIG. 2C

Ddl Loop	Node 1	lap	Node 2	Gil L1/L Ilanery	Halo/Well	Node 1	S/n	A%	Node 2	S/n	A%	X	✓
-1.7	383A Ovary 1 (nrfa)		227A Dendritic cells	422A0401 (420)	421G0196 (C-11)	2393	137	50	1430	2.0	50		
-1.1	115A Ovary Tumor		S7 Ovary H	422N0626 (420)	421G0196 (C-11)	355	27	54	302	1.0	54		
-1.0	261A Ovary Tumor		S10 Skeletal muscle H	422N0621 (420)	421G0196 (C-11)	1290	6.0	51	707	1.9	51		
-0.1	264A Ovary Tumor		S2 Pancreas H	422N0620 (420)	421G0196 (C-11)	9580	44.0	62	1100	2.3	62		
-1.2	306A		S40	422A0605 (420)	421G0196 (C-11)	516	3.8	50	819	2.0	50		
-1.7	265A Ovary Tumor		C15 Heart N	422N0624 (420)	421G0196 (C-11)	2305	14.0	53	409	2.2	53		
-1.4	S25 Ovary Tumor		C14 Bone Marrow H	422N0619 (420)	421G0196 (C-11)	531	3.5	53	743	2.0	53		
-1.9	301A		H	422N0609 (420)	421G0196 (C-11)	1042	106	39	671	2.0	39		
-1.2	S27 Ovary Tumor		C19 Kidney H	422N0627 (420)	421G0196 (C-11)	453	3.3	68	857	3.2	68		
-1.5	900S 1P		900S 5 P	422N0602 (420)	421G0196 (C-11)	1002	12.2	57	594	2.3	57		
-1.1	202A Ovary Tumor		39A Large Intestine H	422A0622 (420)	421G0196 (C-11)	1406	7.5	55	865	2.2	55		
-1.1	S115		C110	422A0604 (420)	421G0196 (C-11)	509	3.4	51	573	2.0	51		
-2.4	206A Ovary Tumor		C112 Lung N	422V0625 (420)	421G0196 (C-11)	700	4.5	54	651	2.1	54		
-1.0	201A Ovary Tumor		S6 Stomach N	422A0620 (420)	421G0196 (C-11)	625	4.6	46	1335	3.6	46		
-1.0	S23 Ovary Tumor		S56 Spinal Cord N	422G0620 (420)	421G0196 (C-11)	3896	22.2	50	502	2.2	50		
-1.6	205A		270A	422A0606 (420)	421G0196 (C-11)	2251	14.7	46	1256	2.0	46		
-5.6	830		I2	422N0601 (420)	421G0196 (C-11)	552	3.4	77	1029	2.3	72		
-3.5	303A Ovary 1		S01 Fetal tissue	422X0607 (420)	421G0196 (C-11)	8126	35.6	50	1449	2.0	50		
-3.3	203A Ovary Tumor		S73 Fetal N	422A0623 (420)	421G0196 (C-11)	439	3.2	61	1531	3.4	61		
	302A		C119	422G0610 (420)	421G0196 (C-11)	307	3.2	50	1270	2.1	50		
-4.0	206M		S27	422S0603 (420)	421G0196 (C-11)	4242	22.2	58	883	2.0	58		

FIG. 3

TCGAGCGGCCGCCCGGGCAGGTCCTTCAGACTTGGACTGTGTCACACTGCCAGGCTTCCAG
GGCTCCAACTTGCAGACGGCCTGTTGTGGGACAGTCTCTGTAATCGCGAAAGCAACCATG
GAAGACCTGGGGGAAAACACCATGGTTTTATCCACCCTGAGATCTTTGAACAACTTCATCT
CTCAGCGTGCCGAGGGAGGCTCTGGACTGGATATTTCTACCTCGGCCGCGACCACGCT

FIG. 4

```
TAGCGYGGTCGCGGCCGAGGYCTGCTTYTCTGTCCAGCCCAGGGCCTGTGGGGTCAGGGC
GGTGGGTGCAGATGGCATCCACTCCGGTGGCTTCCCCATCTTTCTCTGGCCTGAGCAAGGT
CAGCCTGCAGCCAGAGTACAGAGGGCCAACACTGGTGTTCTTGAACAAGGGCCTTAGCAG
GCCCTGAAGGRCCCTCTCTGTAGTGTTGAACTTCCTGGAGCCAGGCCACATGTTCTCCTCAT
ACCGCAGGYTAGYGATGGTGAAGTTGAGGGTGAAATAGTATTMANGRAGATGGCTGGCA
RACCTGCCCGGGCGGCCGCTCSAAATCC
```

FIG. 5

```
AGCGTGGTCGCGGCCGAGGTGTCCTTCAGGGTCTGCTTATGCCCTTGTTCAAGAACACCAG
TGTCAGCTCTCTGTACTCTGGTTGCAGACTGACCTTGCTCAGGCCTGAGAAGGATGGGGCA
GCCACCAGAGTGGATGCTGTCTGCACCCATCGTCCTGACCCCAAAAGCCCTGGACTGGACA
GAGAGCGGCTGTACTGGAAGCTGAGCCAGCTGACCCACGGCATCACTGAGCTGGGCCCCT
ACACCCTGGACAGGGACAGTCTCTATGTCAATGGTTTCACCCATCGGAGCTCTGTACCCAC
CACCAGCACCGGGGTGGTCAGCGACGAGCCATTCAACCTGCCCGGGCGGCCGCTCGA
```

FIG. 6

A
TTGGGGNTTTMGAGCGGCCGCCCGGGCAGGTACCGGGGTGGTCAGCGAGGAGCCATTCAC
ACTGAACTTCACCATCAACAACCTGCGGTATGAGGAGAACATGCAGCACCCTGGCTCCAG
GAAGTTCAACACCACGGAGAGGGTCCTTCAGGGCCTGCTCAGGTCCCTGTTCAAGAGCAC
CAGTGTTGGCÇCTCTGTACTCTGGCTGCAGACTGACTTTGCTCAGACTTGAGAAACATGGG
GCAGCCACTGGAGTGGACGCCATCTGCACCCTCCGCCTTGATCCCACTGGTCCTGGACTGG
ACAGAGAGCGGCTATACTGGGAGCTGAGCCAGTCCTCTGGCGGNGACNCCNCTT

B
AGCGTGGTCGCGGCCGAGGTCCAGTCGCAGCATGCTCTTTCTCCTGCCCACTGGCACAGTG
AGGAAGATCTCTGCTGTCAGTGAGAAGGCTGTCATCCACTGAGATGGCAGTCAAAAGTGC
ATTTAATACACCTAACGTATCGAACATCATAGCTTGGCCCAGGTTATCTCATATGTGCTCA
GAACACTTACAATAGCCTGCAGACCTGCCCGGGCGGCCGCTCGA

FIG. 7A and 7B

```
TGTGGTGTTGAACTTCCTGGAGNCAGGGTGACCCATGTCCTCCCCATACTGCAGGTTGGTG
ATGGTGAAGTTGAGGGTGAATGGTACCAGGAGAGGGCCAGCAGCCATAATTGTSGRGCKG
SMGMSSGAGGMWGGWGTYYCWGAGGTTCYRARRTCCACTGTGGAGGTCCCAGGAGTGCT
GGTGGTGGGGACAGAGSTCYGATGGGTGAAACCATTGACATAGAGACTGTTCCTGTCCAG
GGTGTAGGGGCCCAGCTCTTYRATGYCATTGGYCAGTTKGCTYAGCTCCCAGTACAGCCRC
TCTCKGYYGMGWCCAGSGCTTTTGGGGTCAAGATGATGGATGCAGATGGCATCCACTCCA
GTGGCTGCTCCATCCTTCTCGGACCTGAGAGAGGTCAGTCTGCAGCCAGAGTACAGAGGG
CCAACACTGGTGTTCTTTGAATA
```

FIG. 8

TCGAGCGGCCGCCCGGGCAGGTCAGGAAGCACATTGGTCTTAGAGCCACTGCCTCCTGGA
TTCCACCTGTGCTGCGGACATCTCCAGGGAGTGCAGAAGGGAAGCAGGTCAAACTGCTCA
GATCAGTCAGACTGGCTGTTCTCAGTTCTCACCTGAGCAAGGTCAGTCTGCAGCCAGAGTA
CAGAGGGCCAACACTGGTGTTCTTGAACAAGGGCTTGAGCAGACCCTGCAGAACCCTCTTC
CGTGGTGTTGAACTTCCTGGAAACCAGGGTGTTGCATGTTTTTCCTCATAATGCAAGGTTG
GTGATGG

FIG. 9

FIG. 10

FIG. 11

FIG. 12

FIG. 13

FIG. 14

11721-1

ACGGTTTCAATGGACACTTTTATTGTTTACTTAATGGATCATCAATTTTGTCTCACTACCTA
CAAATGGAATTTCATCTTGTTTCCATGCTGAGTAGTGAAACAGTGACAAAGCTAATCATAA
TAACCTACATCAAAAGAGAACTAAGCTAACACTGCTCACTTTCTTTTTAACAGGCAAAATA
TAAATATATGCACTCTAXAATGCACAATGGTTTAGTCACTAAAAAAATTCAAATGGGATCTT
GAAGAATGTATGCAAATCCAGGGTGCAGTGAAGATGAGCTGAGATGCTGTGCAACTGTTT
AAGGGTTCCTGGCACTGCATCTCTTGGCCACTAGCTGAATCTTGACATGGAAGGTTTTAGC
TAATGCCAAGTGGAGATGCAGAAAATGCTAAGTTGACTTAGGGGCTGTGCACAGGAACTA
AAAGGCAGGAAAGTACTAAATATTGCTGAGAGCATCCACCCCAGGAAGGACTTTACCTTC
CAGGAGCTCCAAACTGGCACCACCCCCAGTGCTCACATGGCTGACTTTATCCTCCGTGTTC
CATTTGGCACAGCAAGTGGCAGTG

11721-2

AAGGCTGGTGGGTTTTTGATCCTGCTGGAGAACCTCCGCTTTCATGTGGAGGAAGAAGGG
AAGGGAAAAGATGCTTCTGGGAACAAGGTTAAAGCCGAGCCAGCCAAAATAGAAGCTTTC
CGAGCTTCACTTTCCAAGCTAGGGGATGTCTATGTCAATGATGCTTTTGGCACTGCTCACA
GAGCCCACAGCTCCATGGTAGGAGTCAATCTGCCACAGAAGGCTGGTGGGTTTTTGATGA
AGAAGGAGCTGAACTACTTTGCAAAGGCCTTGGAGAGCCCAGAGCGACCCTTCCTGGCCA
TCCTGGGCGGAGCTAAAGTTGCAGACAAGATCCAGCTCATCAATAATATGCTGGACAAAG
TCAATGAGATGATTATTGGTGGTGGCAATGGCTTTTACCTTCCTTAAGGTGCTCAACAACAT
GGAGATTGGCACTTCTCTGTTTGATGAAGACCGAGCCAAGATTGTCAAAGACCTAATGTCC
AAAGCTGACAAGAATGCTGTGCAAGATTACCTTGCCTGTTGACTTTGTCACTGCTGACAAGT
TTGATGA

11724-1

TTTGTTCCTTACATTTTTCTAAAGAGTTACTTAAATCAGTCAACTGGTCTTTGAGACTCTTA
AGTTCTGATTCCAACTTAGCTAATTCATTCTGAGAACTGTGGTATAGGTGGCGTGTCTCTTC
TAGCTGGGACAAAAGTTCTTGTTTCCCCCTGTAGAGTATCACAGACCTTCTGCTGAAGC
TGGACCTCTGTCTGCGCCTTGGCACTCCCAAATCTGCTTGTCATGTTCAAGCCTGGAAATGTT
AATCTTTAATTCTTCCATATGGATGGACATCTGTCTAAGTTGATCCTTTAGAACACTGCAAT
TATCTTCTTTGAGTCTAATTTCTTCTTCTTTGCTTTGAATCGCCATCACTAAACTTCCTCTCCC
ATTTCTTAGCTTCATCTATCACCCTGTCACGATCATCCTGGAGGGAAGACATGCTCTTAGTA
AAGGCTGCAAGCTGGGTCACAGTACTGTCCAAGTTTTCCTGAAGTTGCTGAACTTCCTTGT
CTTTCTTGTTCAAAGTAACCTGAATCTCTCCAATTGTCTCTTCCAAGTGGACTTTTTCTCTGC
GCAAAGCATCCAG

11724-2

TCATTGCCTGTGATGGCATCTGGAATGTGATGAGCAGCCACGAAGTTGTAGATTTCATTCA
ATCAAAGGATTCAGCATGTGCTGGAAGCTGTGAGGCAAGAGAAACAAGAACTGTATGGCA
AGTTAAGAAGCACAGAGGCAAACAAGAAGGAGACAGAAAAGCCAGTTGCAGGAAGCTGAG
CAAGAAATGGAGGAAATGAAAGCAAAAGATGAGAAAGTTTGCTAAATCTAAACAGCAGAA
AATCCTAGAGCTGGAAGAAGCAGAATGACCGGCTTAGGGCAGAGGTGCACCCTGCAGGAG
ATACAGCTAAAGAGTGTATGGAAAACACTTCTTCTTCCAATGCCACCATGAAGGAAGAAC
TTGAAAGGGTCAAAATGGAGTATGAAACCCTTTCTAAGAAGTTTCAGTCTTTAATGTCTGA
GAAAGACTCTCTAAGTGAAGAGGTTCAAGATTTAAAGCATCAGATAGAAGGTAATGTATC
TAAACAAGCTAACCTAGAGCCCACCGAGAAACATGATAACCAAACGAATGTCACTGAAGA
GGGAACACAGTCTATACCAGGT

FIG. 15A

11725-32-1,2

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AAGCCAATAATCACCATTTATTACTTAATATATGCCAACCACTGTACTTGGCAGTTCACAA
ATTCTCACCGTTACAACAACCCCATGAGGTATTTATTCCCATTCTATAGATAGGGAAACCA
CAGCTCAAGTAAGTTAGGAAACTGAGCCAAGTATACACAGAATACGAAGTGGCAAAACTA
GAAGGAAAGACTGACACTGCTATCTGCTGGCCTCCAGTGTCCTGGCTCTTTTCACACGGGtT
CAATGTCTCCAGCGCTGCTGCTGCTGCTGCATTACCATGCCCTCATTGTTTTTCTTCCTCTG
GTGTTCAACTGCATCCTTCAAAGAATCTAACTCATTCCAGAGACCACTTATTTCTTTCTCTC
TTTCTGAAATTACTTTTAATAATTCTTCATGAGGGGGAAAAGAAGATGCCTGTTGGTAGTT
TTGTTGTTTAAGCTGCTCAATTTGGGACTTAAACAATTTGTTTTCATCTTGTACATCCTGTA
ACAGCTGTGTTTTGCTAGAAAGATCACTCTCCCTCTCTTTTAGCATGGCTTCTAACCTCTTC
AATTCATTTTCCTTTTCTTTCAACACAATCTCAAGTTCTTCAAACTGTGATGCAGAAGAGGC
CTCTTTCAAGTTATGTTGTGCTACTTCCTGAACATGTGCTTTTAAAGATTCATTTTCTTCTTG
AAGATCCTGTAACCACTTCCCTGTATTGGCTAGGTCTTTCTCTTTCTCTTCCAAAACAGCCT
TCATGGTATTCATCTGTTCCTCTTTTCCTTTTAATAAGTTCAGGAGCTTCAGAAC
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11726-1&2

```
CAAGCTTTTTTTTTTTTTTTAAAAAGTGTTAGCATTAATGTTTTATTGTCACGCAGATGGCA
ACTGGGTTTATGTCTTCATATTTTATATTTTGTAAATTAAAAAAAATTACAAGTTTTAAATA
GCCAATGGCTGGTTATATTTTCAGAAAAACATGATTAGACTAATTCATTAATGGTGGCTTCA
AGCTTTTCCTTATTCGGCTCCAGAAAATTCACCCACCTTTTGTCCCTTCTTAAAAAAACTGGAA
TGTTGGCATCCATTTGACTTCACACTCTGAAGCAACATCCTGACAGTCATCCACATCTACTT
CAAGGAATATCACGTTGGAATACTTTTCAGAGAGGGAATGAAAGAAAGGCTTGATCATTT
TGCAAGGCCCACACCACGTGCCTGAGAAGTCAACTACTACAAGTTTATCACCTGCAGCGTC
CAAGGCTTCCTGAAAAGCAGTCTTGCTTCTCGATCTGCTTCACCATCTTGGCTGCTGGAGTCT
GACGAGCCGCTGTAAGGACCGATCGAAATGGATCCAAAGCACCAAACAGAGCTTCAAGA
CTCCCTGCTTGGCTTGAATTCGGATCCGATATCGCCATGGCCT
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11727-1&2

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AAGTGTTAGCATTAATGTTTTATTGTCACGCAGATGGCAACTGCGTTTATGTCTTCATATTT
TATATTTTTGTAAATTAAAAAAAATTMCAAGTTTTAAATAGCCAATGGCTGGTTATATTTTC
AGAAAACATGATTAGACTAATTCATTAATGGTGGCTTCAAGCTTTTCCTTATTGGCTCCAG
AAAATTCACCCACCTTTTGTCCCTTCTTAAAAAAACTGGAATGTTGGCATCCATTTGACTTCA
CACTCTGAAGCAACATCCTGACAGTCATCCACATCTACTTCAAGGAATATCACGTTGGAAT
ACTTTTCAGAGACGGAATGAAAGAAACGCTTGATCATTTTGCAAGGCCCACACCACGTGG
CTTGCTCTCGATCTGCTTCACCATCTTGGCTGCTGGAGTCTGACGAGCGGCTGTAAGGACC
GATCGAAATGGATCCAAAGCACCAAACACACCTTCAAGACTCGCTGCTTGGCATGAATTC
GGATCCCA
```

FIG. 15B

11723.1.40.19.19

TACAAACTTTATTGAAACGCACACGCGCACACACACAAACACCCCTGTGGATAGGGAAAA
GCACCTGGCCACAGGGTCCACTGAAACGGGGAGGGGATGGCAGCTTGTAATGTGGCTTTT
GCCACAACCCCCTTCTGACAGGGAAGGCCTTAGATTGAGGCCCCACCTCCCATGGTGATGG
GGAGCTCAGAATGGGGTCCAGGGAGAATTTGGTTAGGGGGAGGTGCTAGGGAGGCATGA
GCAGAGGGCACCCTCCGAGTGGGGTCCCGAGGGCTGCAGAGTCTTCAGTACTGTCCCTCAC
AGTCAGCTGTCTCAAGGCTGGGTCCCTCAAAGGGGCGTCCCAGCGCGGGGCCTCCCTGCGC
AAACACTTGGTACCCCTGGCTGCGCAGCGGAAGCCAGCAGGACAGCAGTGGCGCCGATCA
GCACAACAGACGCCCTGGCGGTAGGGACAGCAGGCCCAGCCCTGTCGGTTGTCTCGGCAG
CAGGTCTGGTTATCATGGCAGAAGTGTCCTTCCCACACTTCACGTCCTTCACACGCACGTG
AXGGCTACXGGCCAGGAAG

11723.2.40.19.19

CCCGTGGGTGCCATCCACGGAGTTGTTACCTGATCTTTGGAAGCAGGATCGCCCGTCTGCA
CTGCAGTGGAAGCCCCGTGGGCAGCAGTGATGGCCATCCCCGCATGCCACGGCCTCTGGG
AAGGGGCAGCAACTGGAAGTCCCTGAGACGGTAAAGATGCAGGAGTGGCCGGCAGAGCA
GTGGGCATCAACCTGGCAGGGGCCACCCAGATGCCTGCTCAGTGTTGTGGGCCATTTGTCC
AGAAGGGGACGGCAGCAGCTGTAGCTGGCTCCTCCGGGGTCCAGGCAGCAGGCCACAGGG
CAGAACTGACCATCTGGGCACCGCCTTCCAGCCACCAGCCCTGCTGTTAAGGCCACCCAGC
TCACCAGGGTCCACATGGTCTGCCTCCGTCCGACTCCGCGGTCCTTGGCGCCCTGATGGTTC
TACCTGCTGTGAGCTGCCCAGTGCGAAGTATGGCTGCTGCCAATGCCCAACGCCACCTGCT
GCTCCGATCACCTGCACTGCTGCCCCAAGACACTGTGTGTGACCTGATCCAGAGTAAGTGC
CTCTCCAAGGACAACG

11730-1

GAATCACCTTTCTGGTTTAGCTAGTACTTTGTACAGAACAATGAGGTTTCCCACACGCGGAG
TCTCCCTGGGCTCTGTTTGGCTCTCGGTAAGGCAGGCCTACACCTTTTCCTCTCCTCTATGG
AGAGGGGAATATGCATTAAGGTGAAAAGTCACCTTCCAAAAGTGAGAAAGGGATTCGATT
GCTGCTTCAGGACTGTGGAATTATTTGGAATGTTTTACAAATGGTTGCTACAAAACAACAA
AAAACGTAATTACAAAATCTGTACATCACAACATGCTTTTTAAAGACATTATGCATTGTGC
TCACATTCCCTTAAATGTTGTTTCCAAAGGTGCTCAGCCTCTAGCCCAGCTGGATTCTCCGG
GAAGAGGCAGAGACAGTTTGGCGAAAAAACACACAGGGAAGGAGGGGGTGGTGAAACGA
GAAAGCAGCCTTCCAGTTAAAGATCAGCCCTCAGTTAAAGGTCAGCTTCCCGCAXGCTGCC
CTCAXGCGGAGTCTGGGTCAGACGGACCGAGCAGCAGCACGGTGGGACTGGGGCGT

11730-2

AACCGGAGCGCGAGCAGTACCTGGGTGGGCACCATGGCTGGGATCACCACCATCGAGCCG
GTGAAGCGCAAGATCCAGGTTCTGCACCAGCAGGCCAGATGATGCAGAGGAGCGAGCTGA
GCGCCTCCAGCGAGAAGTTGAGCGAGAAAGCGCGCGCCCGGGAACAGGCTGACGGCTGAGG
TGGCCTCCTTGAACCGTAGGATCCAGCTGGTTGAAGAAGAGCTGGACCGTGCTCAGGAGC
GCCTGGCCACTGCCCTGCAAAAAGCTGGAAGAAGCTGAAAAAGCTGCTGATGAGAGTGAGA
GAGGTATGAAGGTTATTGAAAACCCGGCCCTTAAAAGATGAAGAAAAGATGGAACTCCAG
GAAATCCAACTCAAAGAAGCTAAGCACATTCCAGAAGAGGCACATAGGAAGTATGAAGA
GGTGGCTCGTAAGTTCGTGATCATTCAAGGAGACTTGGAACGCACAGAGGAACGACCTGA
GCTGCCAGAGTCCCGTTGCCGGAGAGATCCATGAGCACATTAGACTGATGGACCAGAACCT
GAAGTGTCTGAGTGC

FIG. 15C

11732.1contig

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GAGAACTTGGCCTTTATTGTGGGCCCAGGAGGGCACAAAGGTCAGGAGGCCCAAGGGAGG
GATCTGGTTTTCTGGATAGCCAGGTCATAGCATGGGTATCAGTAGGAATCCGCTGTAGCTG
CACAGGCCTCACTTGCTGCAGTTCCGGGGAGAACACCTGCACTGCATGGCGTTGATGACCT
CGTGGTACACGACAGAGCCATTGGTGCAGTGCAAGGGCACGCGCATGGGCTCCGTCCTCG
AGGGCAGGCAGCAGGAGCATTGCTCCTGCACATCCTCGATGTCAATGGAGTACACAGCTT
TGCTGGCACACTTTCCCTGGCAGTAATGAATGTCCACTTCCTCTTGGGACTTACAATCTCCC
ACTTTGATGTACTGCACCTTGGCTGTGATGTCTTTGCAATCAGGCTCCTCACATGTGTCACA
GCAGGTGCCTGGAATTTTCACGATTTTGCCTCCTTCAGCCAGACACTTGTGTTCATCAAATG
GTGGGCAGCCCGTGACCCTCTTCTCCCAGATGTACTCTCCTCT
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11732.2contig

```
GCCTGGACCTTGCCGGATCAGTGCCACACAGTGACTTGCTTGGCAAATGGCCAGACCTTGC
TGCAGAGTCATCGTGTCAATTGTGACCATGGACCCCGGCCTTCATGTGCCAACAGCCAGTC
TCCTGTTCGGGTGGAGGAGACGTGTGGCTGCCGCTGGACCTGCCCTTGTGTGTGCACGGGC
AGTTCCACTCGGCACATCGTCACCTTCGATGGGCAGAATTTCAAGCTTACTGGTAGCTGCT
CCTATGTCATCTTTCAAAACAAGGACCACGACCTGGAAGTGCTCCTCCACAATGGGGCCTG
CAGCCCCGGGGCCAAAACAAGCCTGCATGAAGTCCATTGAGATTAAGCATGCTGGCGTCTC
TGCTGAGCTGCACAGTAACATGGAGATCGCAGTGGATGGGAGACTGGTCCTTGCCCCGTA
CGTTCGTGAAAAACATGGAAGTCACCATCTACGGCGCTATCATGTATGAAGTCACGGTTTACC
CATCTTGGCCACATCCTCACATACAACCGCCXCAAAACAACGACTT
```

11735-1-2

```
AGATCAACCTCTGCTGGTCACGACGAATGCCTTCCTTGTCTTGGATCTTTGCTTTGACGTTC
TCGATAGTRWCAsCTXXRYTSRAMSKMAAGKGYRATGRWMTTKSYWGWRASYXTMWWM
RSGRARAYTTaGaCAYCCCMCCTCWsAGsCGSAGKACCARGTGCAaAgGTGGACTCTTTCTG
GATGTTGTAGTCAGACAGGGTGCCGTTCATCTTCCAGCTGTTTCCCAGCAAAGATCAACCTC
TGCTGATCAGGAGGCATGCCTTCCTTATCTTGGATCTTTGCCTTGACATTCTCGATCGGTGTC
ACTGGGCTCCACCTCGCAGGCTGATCCTCTTACCAGTCAGGGTCTTCACGAACATYTGCATC
CCACCTCTCGAGACGGACCACCACGCTGCACCGTRCACTCTTTCTGGATGTTGTAGTCAGACA
GGGTGCGYCCATCTTCCAGCTGCTTTCCSaGCAAAGATCAACCTCTGCTGGTCAGGAGGRAT
GCCTTCCTTGTCYTCGATCTTTCCYTTGACRTTCTCRATGGTGTCACTCGGCTCCACTTCGA
GAGTCATGGTCTTACCAGTCAGGGTCTTCACGAAGATCTGCATCCCACCTCTAA
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11740.2contig

```
AAGTCACAAACAGACAAAGATTATTACCAGCTGCAAGCTATATTAGAAGCTGAACGAAGA
GACAGAGGTCATGATTCTGAGATGATTGGAGACCTTCAAGCTCGAATTACATCTTTACAAG
AGGACCTGAAGCATCTCAAACATAATCTCGAAAAAGTGGAACGAGAAAGAAAAGAGGCCT
CAAGACATGCTTAATCACTCAGAAAACGAAAAAGAATAATTTAGAGATAGATTTAAAACTAC
AAACTTAAATCATTACAACAACGGTTAGAACAAGAGGGTAAATGAACACAAAGTAACCAAA
GCTCGTTTAACTGACAAACATCAATCTATTGAAGAGGCCAAAGTCTGTGGCAATGTGTGAG
ATGGCAAAAAAGCTGAAAGAACAAAAGACAAGCTCGAGAGAAGGCTGAAAATCGGGTTGT
TCACATTGAGAAACAGTGTTCCATGCTAGACGTTGATCTGAAGCAATCTCAGGCAGAAACT
AGAACATTTGACTGGAAATAAAGAAAGGATGGACGATGAAGTTAAGAATCTA
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FIG. 15D

11765.2&64.2.contig

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CGCCTCCACCATGTCCATCAGGGTGACCCAGAAGTCCTACAAGGTGTCCACCTCTGGCCCC
CGGGCCTTCAGCAGCCGCTCCTACACGAGTGGGCCCGGTTCCCGCATCAGCTCCTCGAGCT
TCTCCCGAGTGGGCAGCAGCAACTTTCGCGGTGGCCTGGGCGGCGGCTATCGTGGGGCCA
GCGGCATGGGAGGCATCACCGCAGTTACGGTCAACCAGAGCCTGCTGAGCCCCCTTGTCCT
GGAGGTGGACCCCAACATCCAGGCCGTGCGCACCCAGGAGAAGGAGCAGATCAAGACCCT
CAACAACAAGTTTGCCTCCTTCATAGACAAGGTACGGTTCCTGGAGCAGCAGAACAAGAT
GCTGGAGACCAAGTGGAGCCTCCTGCAGCAGCAGAAGACGGCTCGAAGCAACATGGACA
ACATGTTCGAGAGCTACATCAACARCCTTAGGCGGCAGCTGGAGACTCTGGGCCAGGAGA
AGCTGAAGCTGGAGGCGGAGCTTGGCAACATGCAGGGGCTGGTGGAGGACTTCAAGAAC
AAGTATGAGGATGAGATCAATAAGCGTACAGAGATGGAGAACGAATTTGTCCTCATCAAG
AAGGATGTGGATGAAGCTTACATGAACAAGGTAGAGCTGGAGTCTCGCCTGGAAGGGCTG
ACCGACGAGATCAACTTCCTCAGGCAGCTGTATGAAGAGGAGATCCGGGAGCTGCAGTCC
CAGATCTCGGACACATCTGTGGTGCTGTCCATGGACAACAGCCGCTCCCTGGACATGGACA
GCATCATTGCTGAGGTCAAGGCACAGTACGAGGATATTGCCAACCGCACGCGGGCTGAGG
CTGAGAGCATGTACCAGGTCAAGTATGAGGAGCTGCAGAGCCTGGCTGGGAAGCACGGGG
ATGACCTGCGGCGCACAAAGACTGAGATCTCTGAGATGAACCCGGAACATCAGCCCGGCT
XCAGGCTGAGATTGAGGGCCTCAAAGCCCAGAXGGCTTXCCTGGAXGXCCGCCAT
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11767.2.contig

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CCCGGAGCCAGCCAACGACCGGAAAATGGCAGACAATTTTTCGCTCCATGATGCGTTATCT
GGGTCTGGAAACCCAAACCCTCAAGGATGGCCTCGCCGCATGGGCGGAACCAGCCTGCTGGG
GCAGGGGGCTACCCAGCGGCCTTCCTATCCTGGGGCCTACCCCGGGCAGGCACCCCCAGCG
GCTTATCCTGCACAGGCACCTCCAGGCGCCCTACCCTGGAGCACCTGGAGCCTTATCCCGGAG
CACCTGCACCTGGAGTCTACCCACGGCCTACCCAGCGGCCCTGGGGCCCTACCCATCTTCTGG
ACAGCCAAGTGCCACCGGAGCCCTACCCTGCCACTGGCCCCTATGCGGCCCCTGCTGGGCCA
CTGATTGTGCCTTATAACCTGCCTTTGCCTGCGGGAGTGGTGCCTCGCATGCTGATAACAA
TTCTGGGCACGGTGAAGCCCAATCCAAAACAGAATTGCTTTAGATTTCCAAAGAGGGAATG
ATGTTGCCTTCCACTTTAACCCACGCTTCAATGAGAACAACAGGAGAGTCATTGGTTGCAA
TACAAAGCTGGATAA
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11768-1&2

```
GGGAATCCAACAACTTTATTGAAAGGAAAGTGCAATGAAATTTGTTGAAACCTTAAAAGG
GGAAACTTAGACACCCCCCCTCRAgCGMAGKACCARGTGCARAgGTGGACTCTTTCTGGAT
GTTGTAGTCAGACAGGGTRCGWCCATCTTCCAGCTGTTTYCCRGCAAAGATCAACCTCTGC
TGAICAGGAGGRATGCCTTCCTTATCTTGGATCTTTGCCTTGACATTCTCGATGGTGTCACT
GGGCTCCACCTCGAGGGTGATGGTCTTACCAGTCAGGGTCTTCACGAAGATYTGCATCCCA
CCTCTGAGACGGAGCACCAGGTGCACGGTRGACTCTTTCTGGATGTTGTAGTCAGACAGG
GTGCGYCCATCTTCCAGCTGcTTTCCSaGCAAAGATCAACCTCTGCTGGTCAGGAGGRATGC
CTTCCTTGTCYTCGATCTTTGCYTTGACRTTCTCAATGGTGTCACTCGGCTCCACTTCGAGA
GTGATGGTCTTACCAGTCACGGTCTTCACGAAGATCTGCATCCCACCTCTAAGACGGAGCA
CCAGGTGCAGGGTGGACTCTTTCTGGATCGgTTGTAGTCAGACACGGTGCCGTCCATCTTCCA
GCTGTTTCCCAGCAAAGATCAACCT
```

FIG. 15E

11768-1&2-11735-1&2

AGGTTGATCTTTGCTGGGAAACAGCTGGAAGATGGACGCACCCTGTCTGACTACAAcCATC
CAGAAAGAGTCCACCCTGCACCTGGTGCTCCGTCTTAGAGGTGGGATGCAGATCTTCGTGA
AGACCCTGACTGGTAAGACCATCACTCTCGAAGTGGAGCCGAGTGACACCATTGAGAAYG
TCAARGCAAAGATCCARGACAAGGAACGCATYCCTCCTGACCAGCAGAGGTTGATCTTTG
CtSGGAAAgCAGCTGGAAGATGGRCGCACCCTGTCTGACTACAACATCCAGAAAGAGTCYA
CCCTGCACCTGGTGCTCCGTCTCAGACGGTGGGATGCARATCTTCGTGAAGACCCTGACTGG
TAAGACCATCACCCTCGAGGTGGAGCCCAGTGACACCATCGAGAATGTCAAGGCAAAGAT
CCAAGATAAGGAAGGCATCCCTCCTGATCAGCAGAGGTTGATCTTTGCTGGGAAACAGCT
GGAAGATGGACGCACCCTGTCTGACTACAACATCCAGAAAGAGTCCACcTYTGCACYTGGT
MCTBCGrCTYaGAGGKGGGRTGcaaaTCTWMGTKWagaCaCtCaCTKKYAAGRYYaTCAMCMWt
gAKXTCzAKYSCASTKWCaCTWTCRAKAAMGTYRWWGCAWagaTCCMAGACAAGGAAGGC
ATTCCTCCTGACCAGCAGAGGTTGATCT

11769.1.contig

ATGGAGTCTCACTCTGTCGACCAGGCTGGAGCGCTGTGGTGCGATATCGGCTCACTGCAGT
CTCCACTTCCTGGGTTCAAGCGATCCTCCTGCCTCAGCCTCCCGAGTAGCTGGGACTACAG
GCAGGCGTCACCATAATTTTTTGTATTTTAGTAGAGACATGGTTTCGCCATGTTGGCTGCG
CTGGTCTCGAACTCCTGACCTCAAGTGATCTGTCCTGGCCTCCCAAAGTGTTGGGATTACA
GGCGAAAGCCAACGCTCCCGGCCAGGCAACAACTTTAGAATGAAGGAAATATGCAAAAG
AACATCACATCAAGGATCAATTAATTACCATCTATTAATTACTATATGTGGGTAATTATGA
CTATTTCCCAAGCATTCTACGTTGACTCCTTGAGAAGATGTTTGTCCTGCATGGTGGAGAG
TGGAGAAGGGCCACGATTCTTACGTT

11769.2.contig

AGCGCGGTCTTCCGGCGCGAGAAAGCTGAAGGTGATGTGGCCGCCCTCAACCGACGCATC
CAGCTCGTTGAGGACGAGTTGCACACGCCCTCAGGAACGACTGGCCACGGCCCTGCAGAAG
CTGGAGGAGGCAGAAAAAGCTGCACATGAGAGTGAGAGAGGAATGAAGGTGATAGAAAA
CCGGGCCCATGAAGGATGAGGCACAAGCATGGAGATTCAGGAGATGCAGCTCAAAGAGGCCA
AGCCACATTGCCGAAGAGGCCTGACCGGCAAATACGACGAGGTAGCTCGTAAGCTGGTCATCC
TGGAGGGTGAGCTGCAGAGCGCAGAGCAGCGTGCGGAGGTGTCTGAACTAAAAATGTGGT
GACCTGGAAGAACAACTCAAGAATGTTACTAACAATCTGAAATCTCTGGAGGCTGCATCT
GAAAAGTATTCTGAAAAGGAGGACAAAATATGAAGAAGAAATTAAACTTCTGTCTGACAAA
CTGAAAGAGGCTGAGACCCGTGCTGAATTTGCAGACAGAACGGTTGCAAAACTGGAAAAG
ACAATTGATGACCTGGAAGAGAAACTTGCCCAGC

11770.1.contig

GTGCACAGGTCCCATTTATTGTAGAAAATAATAATAATTACAGTGATGAATAGCTCTTCTT
AAATTACAAAACAGAAACCACAAAGAAGGAAGACGAAAAAACCCCAGGACTTCCAAGCGGT
GAAGCTGTCCCCTCCTCCCTGCCACCCTCCCAGGCTCATTAGTGTCCTTGGAAGGGGCAGA
GGACTCAGAGCGGGATCAGTCTCCAGCGGGCCCTGGGCTGAAGCGCGTGAGCCAGAGAGTCC
TGAGGCCACAGAGCCTGGGCAAcCTGAGCCGCCTCTCTGGCCCCCTCCCCCACCACTGCCCA
AACCTGTTTACAGCCACCTTCGCCCCTCCCCTCTAAACCCGTCCATCCACTCTCGCACTTCCCA
GGCAGGTGGGTGGGCCAGCCTTCAGCCATACTCCTGGGCGCGGGTTTCGGTGACCAAGCC
ACAGTCCCAGAGGTGATATCAAGGCCT

FIG. 15F

11770.2.contig

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GCAAGGAACTGGTCTGCTCACACTTGCTGGCTTGCGCATCAGGACTGGCTTTATCTCCTGA
CTCACGGTGCAAAGGTGCACTCTGCGAACGTTAAGTCCGTCCCCAGCGCTTGGAATCCTAC
GGCCCCCACAGCCGGATCCCCTCAGCCTTCCAGGTCCTCAACTCCCGTGGACGGCTGAACAA
TGGCCTCCATGGGGCTACAGGTAATGGGCATCGCGCTGGCCGTCCTGGGCTGGCTGGCCGT
CATGCTGTGCTGCGCGCTGCCCATGTGGCGCGTGACGGCCTTCATCGGCAGCAACATTGTC
ACCTCGCAGACCATCTGGGAGGGCCTATGGATGAACTGCGTGGTGCAGAGCACCGGCCAG
ATGCAGTGCAAGGTGTACGACTCGCTGCTGGCACTGCCGCAGGACCTGCAGGCGGCCCGC
GCCCTCGTCATCATCA
```

11773.1.contig

```
TGCAAAAGGGACACAGGCGTTCAAAAATAAAAATTTCTCTTCCCCCTCCCCAAACCTGTAC
CCCAGCTCCCCGACCACAACCCCCTTCCTCCCCCGGGGAAAGCAAGAAGGAGCAGGTGTG
GCATCTGCAGCTGGGAAGAGAGAGGCCGGGGAGGTGCCGAGCTCGGTGCTGGTCTCTTTC
CAAATATAAATACXTGTGTCAGAACTGGAAAATCCTCCAGCACCCACCACCCAAGCACTCT
CCGTTTTCTGCCGGTGTTGGACAGGGGCGGGGGGCAGGGGCGCCAGGCACCGGCTCGCT
GCGGTCTACTGCATCCGCTGGGTGTGCACCCCGCGAGCCTCCTGCTGCTCATTGTAGAAGA
GATGACACTCGGGGTCCCCCCGGATGGTGGGGGCTCCCTGGATCAGCTTCCCGGTGTTGGG
GTTCACACACCAGCACTCCCCACGCTGCCCGTTCAGAGACATCTTGCACTGTTTGAGGTTG
TACAGGCCATGCTTGTCACAGTTG
```

11773.1.contig

```
GGGTTGGAGGGACTGGTTCTTTATTTCAAAAAGACACTTGTCAATATTCAGTATCAAAACA
GTTGCACTATTGATTTCTCTTTCTCCCAATCGGCCCCAAAGAGACCACATAAAAGGAGAGT
ACATTTTAAGCCAATAAGCTGCAGGATGTACACCTAACAGACCTCCTAGAAAACCTTACCAG
AAAATGGGGCACTGGCTACGGAAGCAAACTTAAAAAGATCAACAAACTGCCAGCCCACGGA
CTGCAGAGGCTGTCACAGCCAGATGCGGTGCCCAGGGTGCCCACAAACCCAAAGCAAAGTT
TCAAAATAATATAAAAATTTAAAAAGTTTTGTACATAAGCTATTCAAGATTTCTCCAGCACT
GACTGATACAAAGCACAATTGAGATGGCACTTCTAGAGACAGCAGCTTCAAACCCAGAAA
AGGGTGATGAGATGAGTTTCACATGGCTAAATCAGTGGCAAAAACACAGTCTTCTTTCTTT
CTTTCTTTCAAGGAGGCAGCAAAGCAATTAAGTCGTCACCTCAACATAAGGGGCACATGA
TCCATTCTGTAAGCAGTTCTGAAGGGG
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11778-2.&30-2

```
CAGGAACCGGAGCGCCACCAGTAGCTGCCTCGGCCACCATGGCTGGGATCACCACCATCGA
GGCGGTGAAGCGCAAGATCCAGCTTCTGCAGCAGCACCCAGATGATGCAGAGGACCGAG
CTGAGCCCCTCCAGCGACAACTTCACGGCAGAAAGGCGGGCCCGGCAACACGCTGAGGCT
GAGGTGGCCTCCTTGAACCGTAGGATCCAGCTGGTTGAAGAAGAGCTGGACCGTGCTCAG
GAGCGCCTGGCCACTGCCCTGCAAAAGCTGGAAGAACCTCAAAAAGCTGCTGATGAGAGT
GAGAGAGGTATGAAGGTTATTGAAAACCGGGCCTTAAAAGATGAAGAAAAGATGGAACT
CCAGGAAATCCAACTCAAAGAAGCTAAGCCACATTGCAGAAGAGCCAGATAGGCAAGTATG
AAGAGGTGGCTCGTAAGTTGGTGATCATTCAAACGAGACTTGCAACGCACACAGCAACGAG
CTGAGCTGGCAGAGTCCCGTTCCCGAGAGATGGATGAGCAGATTAGACTGATGGACCAGA
ACCTGAAGTGTCTGACTGC
```

FIG. 15G

11782.1.contig

ATCTACGTCATCAATCAGGCTGGAGACACCATGTTCAATCGAGCTAAGCTGCTCAATATTG
GCTTTCAAGAGGCCTTGAAGGACTATGATTACAACTGCTTTGTGTTCAGTGATGTGGACCT
CATTCCGATGGACGACCGTAATGCCTACAGGTGTTTTTCGCAGCCACGGCACATTTCTGTT
GCAATGGACAAGTTCGGGTTTAGCCTGCCATATGTTCAGTATTTTGGAGGTGTCTCTGCTCT
CAGTAAACAACAGTTTCTTGCCATCAATGGATTCCCTAATAATTATTGGGGGTTGGGGAGGA
GAAGATGACGACATTTTTAACAGATTAGTTCATAAAGGCATGTCTATATCACGTCCAAATG
CTGTAGTACGGGAGGTGTCGAATGATCCGGCATTCAAGAGACAAGAAAAATGAGCCCAATC
CTCAGAGGTTTGACCGGATCGCACATACAAAGGAAACGATGCGCTTCGATGGTTTGAACT
CACTTACCTACAAGGTGTTGGATGTCAGAGATACCCGTTATATACCCAAATCAC

11782.2.contig

CTAGACCTCTAATTAAAAGGCACAATCATGCTGGAGAATGAACAGTCTGACCCCGAGGGC
CACAGCGAATTTTAGGGAAGGAGGCAAAGAGGTGAGAAGGGAAAGGAAAGAAGGAAGG
AAGGAGAACAATAAGAACTGGAGACGTTGGGTGGGTCAGGGAGTGTGGTGGAGGCTCGG
AGAGATGGTAAACAAACCTGACTGCTATGAGTTTTCAACCCCATAGTCTAGGGCCATGAG
GGCGTCAGTTCTTGGTGGCTGAGGGTCCTTCCACCCAGCCCACCTGGGGGAGTGGAGTGG
GGAGTTCTGCCAGGTAAGCAGATGTTGTCTCCCAAGTTCCTGACCCAGATGTCTGGCAGGA
TAACGCTGACCTGTTCCCTCAACAAGGCACCTGAAAGTAATTTTGCTCTTTAC

11783-1 & 2

CCGAATTCAAGCGTCAACGATCCTTCCCTTACCATCAAATCAATTCCCCACCAATGGTACT
GAACCTACGAGTACACCGACTACGCGCGGACTAATCTTCAACTCCTACATACTTCCCCCAT
TATTCCTAGAACCAGCCGACCTGCGACTCCTTGACGTTGACAATCGAGTAGTACTCCCGAT
TGAAGCCCCCATTCGTATAATAATTACATCACAAGCACGTCTTGCACTCATGAGCTGTCCCC
ACATTAGGCTTAAAAAACAGATGCAATTCCCGGACGTCTAAGCCAAACCACTTTCACCGCTA
CACGACCGGCGGGTATACTACCGTCAATCCTCTGAAATCTGTGGAGCAAACCACAGTTTCAT
GCCCATCGTCCTACAATTAATTCCCCTAAAAAATCTTTGAAATAGGGCCCGTATTTACCCTA
TAGCACCCCCTCTACCCCCTCTAG

11786.1.contig

GCTCTTCACACTTTTATTGTTAATTCTCTTCACATGGCAGATACAGAGCTGTCGTCTTGAAG
ACCACCACTGACCAGGAAATGCCACTTTTACAAAATCATCCCCCCTTTTCATGATTGGAAC
AGTTTTCCTGACCGTCTGGGACCGTTGAAGCGTGACCAGCACATTTGCACATGCAAAAAA
GGAGTGACCCCAAGCGCCTCAACCACACTTCCCAGAGCTCACCATGGGCTGCAGGTGACTT
GAGCCCGGGGTATGCTTCATCAGTGTTAAACATTTACGGGACAAAAGCGCATCATTAGGAT
AAGCAACAGCCACAGCACTTCATGCTTCTGAGGCTTAGCTGTAGGAGCGGGTGAAAGGAT
TCCAGTTTATGAAAATTTAAAGCAAACAACGGTTTTTAGCCTGGGTGCGAAACAGGAAAAC
TGTGATGTCGCCCAATGACCACCATTTTTCTGCCCATGTGAAGGTCCCCATGAAACC

FIG. 15H

11786.2.contig

```
CAAGCGCTTGGCGTTTGGACCCAGTTCAGTGAGGTTCTTGGGTTTTGTGCCTTTGGGGATTT
TGGTTTGACCCAGGGGTCAGCCTTAGGAAGGTCTTCAGGAGGAGGCCGAGTTCCCCTTCAG
TACCACCCCTCTCTCCCCACTTTCCCTCTCCCGGCAACATCTCTGGGAATCAACAGCATATT
GACACGTTGGAGCCGAGCCTGAACATGCCCCTCGGCCCCAGCACATGGAAAAACCCCCTTC
CTTGCCTAAGCTGTCTGAGTTTCTGGCTCTTGAGGCATTTCCAGACTTGAAATTCTCATCAG
TCCATTGCTCTTGAGTCTTTGCAGAGAACCTCAGATCAGGTGCACCTGGGAGAAAGACTTT
GTCCCCACTTACAGATCTATCTCCTCCCTTGGGAAGGGGCAGGGAATGGGGACGGTGTATGG
AGGGGAAGGGATCTCCTGCGCCCTTCATTGCCACACTTGGTGGGACCATGAACATCTTTAG
TGTCTGAGCTTCTCAAATTACTGCAATAGGA
```

13691.1&2

```
AGCGTCAAATCAGAATGGAAAAGACTCAAAACCATCATCAACACCAAGATCAAAAGGAC
AAGRATCCTTCAAGAAACAGGAAAAAACTCCTAAAACACCAAAACGACCTAGTTCTGTAG
AAGACATTAAAGCAAAAATGCAAGCAAGTATAGAAAAAGGTGGTTCTCTTCCCAAAGTGG
AAGCCAAATTCATCAATTATGTGAAGAATTCCTTCCGGATGACTGACCAAGAGGCTATTCA
AGATCTCTGGCAGTGGAGGAAGTCTCTTTAAGAAAATAGTTTAAAACAATTTGTTAAAAAAT
TTTCCGTCTTATTTCATTTCTGTAACAGTTGATATCTGGCTGTCCTTTTTATAATGCAGAGT
GAGAACTTTCCCTACCGTGTTTGATAAATGTTGTCCAGGTTCTATTGCCAAGAATGTGTTGT
CCAAAATGCCTGTTTAGTTTTTAAAAGATGGAACTCCACCCTTTGCTTGGTTTTAAGTATGTA
TGGAATGTTATGATAGGACATACTAGTAGCCGGTGGTCAGACATGGAAATGGTGGGSMGAC
AAAAATATACATGTGAAATAA
```

13692.1&2

```
TCCGAATTCCAAGCGAATTATGCACAAAACCATTCCTTTTAGAGGATTACTTTTTTCAATTTC
GGTTTTAGTAATCTAGGCTTTGCCTGTAAAGAATACAACGATGGATTTTAAATACTGTTTG
TGGAATGTGTTTAAAGCATTGATTCTAGAACCTTTGTATATTTGATAGTATTTCTAACTTTC
ATTTCTTTACTGTTTGCAGTTAATGTTCATGTTCTGCTATGCAATCGTTTATATGCACGTTTC
TTTAATTTTTTTAGATTTTCCTGGATGTATAGTTAAACAACAAAAAGTCTATTTAAAACTG
TACCAGTAGTTTACACTTCTACCAAAGACGAAAGTTGTGGGGTTAAACTTTGTATTTTCTT
TCTTATAGAGGCTTCTAAAAAGGTATTTTTATATGTTCTTTTTAACAAATATTGTGTACAAC
CTTTAAAAACATCAATGTTTGGATCAAAACAACACCCAGCTTATTTTCTGC
```

13693.2

```
TGTGGTGGCGCCGGCTGACGTGGACGCCCAGGACTCTGACCCTGCCCCTGCCTTCAGCAA
GGCCCCCGGCAGCGCCGGCCACTACGAACTGCCGTGGGTTGAAAAATATACGCCAGTAAA
GCTGAATGAAATTGTCGGGCAATCAAGCACACCGTGACCAGGCTAGAGGTCTTTGCAAGGGA
AGGAAATGTGCCCAACATCATCATTGCGGCGCCCTCCAGGAACCGGCAAGACCACAAGCAT
TCTGTGCTTGGCCCGGCGCCCTGCTGGCCCCAGCACTCAAAGATGCCATGTTGGAACTCAAT
GCTTCAAATGACACGGGCCATTGACGTTGTGAGGAATAAAATTAAAATGTTTGCTCAACAA
AAAGTCACTCTTCCCAAACGCCCGACATAAAGATCATCATTCTGGATGAAGCAGACAGCATC
ACCGACGGAGCCCAGCAAGCCTTGAGGACAACCATGGAAATCTACTCTAAAACCACTCGT
TCGCCCTTGCTTGTAATGCTTCCGATAAGATCATCGACCC
```

FIG. 151

13696.1-13744.1

CTTTGCAAAGCTTTTATTTCATGTCTGCGCCATGGAATCCACCTGCACATGGCATCTTAGCT
GTGAAGGAGAAAGCAGTGCCACGAGAAGGAATGAGTGGGCGGAACCAACGGCCTCCACAA
GCTGCCTTCCAGCAGCCTGCCAAGCCCATGGCAGAGAGAGACTGCAAACAAACACAAGCA
AACAGAGTCTCTTCACAGCTGGAGTCTGAAAGCTCATAGTGGCATGTGTGAATCTGACAA
AATTAAAAGTGTGCATAGTCCATTACATGCATAAAACACTAATAATAATCCTGTTTACACG
TGACTGCAGCAGGCAGGTCCAGCTCCACCACTGCCCTCCTGCCACATCACATCAAGTGCCA
TGGTTTAGAGGGTTTTTCATAIGTAATTCTTTTATTCTGTAAAAGGTAACAAAATATACAG
AACAAAACTTTCCCTTTTTAAAAACTAATGTTACAAATCTGTATTATCACTTGGATATAAAT
AGTATATAAGCTGATC

13700.1

CAAGGGATATATGTTGACGGTACRGRGTGACACTGAACAGATCACAAAGCACGAGAAACA
TTAGTTCTCTCCCTCCCCAGCGTCTCCTTCGTCTCCCTGGTTTTCCGATGTCCACAGAGTGA
GATTGTCCCTAAGTAACTGCATGATCAGAGTGCTGKCTTTATAAGACTCTTCATTCAGCGT
ATCCAATTCAGCAATTGCTTCATCAAATGCCGTTTTTGCCAGGCTACAGGCCTTTTCAGGA
GAGTTTAGAATCTCATAGTAAAAGACTGAGAAATTTAGTGCCAGACCAAGACGAATTGGG
TGTGTAGGCTGCATTNCTTTCTTACTAATTTCAAATGCTTCCTGGTAAGCCTGCTGGGAGTT
CGACACAAGTGGTTTGTTTGTTGCTCCAGATGCCACTTCAGAAAGATACCTAAAATAATCT
CCTTTCATTTTCAAAGTAGAACAC

13700.2

TCCGGAGCCGGGGTAGTCGCCGCCTGCTGCCGCCGGTGCAGCCACTGCAGGCACCGCTGCC
GCCGCCTGAGTAGTGGGCTTAGCAAGCAAGACGTCATCTCGCTCGGAGCTTCGCTCGGAA
GGGTCTTTGTTCCCTGCAGCCCTCCCACCGGGAATGACAATGGATAAAAGTGAGCTGGTACA
GAAAGCCAAACTCGCTGAGCAGGCTGACCGATATGATGATATGGCTGCAGCCATGAACGC
AGTCACAGAACAGGCGGCATGAACTCTCCAACGAAGAGCAGAAATCTGCTCTCTGTTGCCTA
CAAGAATGTGGTAAGGCCGCCGCCGCCCCTCTTCCTGGCCTGTCATCTCCACCATTGAGCAGA
AAACACAGAGGAATGACAAGAACCACCAGATGCGCAAAGAGTACCGTGAGAAGATAGA
GGCAGAACTGCAGGACATCTGCCAATGATGTTCTGGACCTTGTTGGACAAATATCTTATTCC
AATGCTACACAACCCAGAAA

13701.1

AAAAACCAGCARGTTCAACACAAAATAGAAATCTCAAATGTAGGATAGAACAAAACCAA
GTGTCTGAGGGGGCAACCAACAGCAAAAGCAAGAAATGAGATGTTGCAAAAAAGATGGA
GGAGGGTTCCCCTCTCCTCTGGGGACTGACTCAAAACACTGATGTGGCAGTATACACCATTC
CAGAGTCAGGGGTGTTCATTCTTTTTTGCCACTAAGAAAACGTGCGGGATTAAGAAGACGT
TTCTGCAGGCTTAGGGACCAAGGCTGGTTCTTTCCCCCCTCCCAACCCCCTTGATCCCTTT
CTCTGATCAGGGCAAAGCAGCTCGAATCAGGGCAGGTACAGTTGGAAACGGAAAGGATTC
CACTTGACAGAATGGGACAGACTCCTTCCCA

FIG. 15J

13701.2

TGGCAATAGCACAGCCATCCAGGAGCTCTTCARGCGCATCTCGGAGCAGTTCACTGCCATG
TTCCGCCGGAAGGCCTTCCTCCACTGGTACACAGGCGAGGGCATGGACGAGATGGAGTTC
ACCGAGGCTGAGAGCAACATGAACGACCTCGTCTCTGAGTATCAAGCAGTACCAGGATGC
CACCGCAGAAGAGGAGGAGGATTTCGGTGAGGAGGCCGAAGAGGAGGCCTAAGGCAGAG
CCCCCATCACCTCAGGCTTCTCAGTTCCCTTAGCCGTCTTACTCAACTGCCCCTTTCCTCTCC
CTCAGAATTTGTGTTTGCTGCCTCTATCTTGTTTTTTGTTTTTTCTTCTGGGGGGGTCTAGAA
CAGTGCCTGGCACATAGTAGGCGCTCAATAAATACTTGGTTGNTGAATGTCTCCT

13702.2

AGCTGGCGCTAGGGCTCGGTTGTGAAATACAGCGTRGTCAGCCCTTGCGCTCAGTGTAGAA
ACCCACGCCTGTAAGGTCGGTCTTCGTCCATCTGCTTTTTTCTGAAATACACTAAGAGCAG
CCACAAAACTGTAACCTCAAGGAAACCATATAGCTTGGAGTGCCTTAATTTTTAACCAGTT
TCCAATAAAACGGTTTACTACCT

13704.2-13740.2

GGAGATGAAGATGAGGAAGCTGAGTCACCTACGGGCARGCGGGCAGCTGAAGATGATGA
GGATGACGATGTCGATACCAAGAAGCAGAAGACCGACGAGGATGACTAGACAGCAAAAA
AGGAAAAGTTAAA

13706.1

GATGAAAATTAAATACTTAAATTAATCAAAAGGCACTACGATACCACCTAAAACCTACTG
CCTCAGTGGCAGTAKCCTAAKGAACATCAAGCTACAGSACATYATCTAATATGAATGTTA
GCAATTACATAKCARGAAGCATGTTTGCTTTCCAGAAGACTATGCNACAATGGTCATTWG
GGCCCAAGAGGATATTTGGCCNGGAAACGATCAAGATAGATNAANGTAAAG

13706.2

GAGTAGCAACCCAAAGCGCTTGGTATTGAGTCTGTGGCSGACTTCGGTTCCGGTCTCTGCA
GCAGCCGTGATCGCTTAGTGGAGTGCTTAGGGTAGTTGGCCAGGATGCCGAATATCAAAA
TCTTCAGCAGGCAGCTCCCACCAGGACTTATCTCASAAAAATTGCTGACCGCCTGGGCCTGG
AGCTACGCAAGGTGGTGACTAAGAAATTCAGCAACCACGAGACCTGTGTGGCAAATTGGTG
AAAGTGTACCGTGCAGAGGATGTCTACATTGTTCAGAGTGGNTGTGGCGAAATCAATGAC
AATTTAATGGAGCTTTTGATCATGATTAATGCCTGCAAGATTGCTTCAGCCAGCCGGGTTA
CTGCAGTCATCCCATGCTTCCCTTATGCCCCCGCAGGATAAGAAAGATNAGAGCCGGGCC
GCCAATCTCAGCCAAGCTTGGTGCAAATATGCTATCTGTAGCAGTGCAGATCATATTATCA
CCATGGACCTACATGCTTCTCAAATTCANGGCTTTTT

FIG. 15K

13707.3

ATGCAAAAGGGGACACAGGGGGTTCAAAAATAAAAATTTCTCTTCCCCCTCCCCAAACCT
GTACCCCAGCTCCCCGACCACAACCCCCTTCCTCCCCCGGGGAAAGCAAGAAGGAGCAGG
TGTGGCATCTGCAGCTGGCAAGAGAGAGGCCGGGGAGGTGCCGAGCTCGGTGCTCGTCTC
TTTCCAAATATAAATACGTGTGTCAGAACTGGAAAATCCTCCAGCACCCACCACCCAAGCA
CTCTCCGTTTTCTGCCGGTGTTTGGAGAGGGGCGGNGGGCACGGGCGCCAGGCACCGGCT
GGCTGCGGTCTACTGCATCCGCTGGGTGTGCACCCCGCGA

13710.2

AGGTTGGAGAAGGTCATGCAGGTGCAGATTGTCCAGGSKCAGCCACAGGGTCAAGCCCAA
CAGGCCCAGAGTGGCACTGGACAGACCATGCAGGTGATGCAGCAGATCATCACTAACACA
GGAGAGATCCAGCAGATCCCGGTGCAGCTGAATGCCGGCCAGCTGCAGTATATCCGCTTA
GCCCAGCCTGTATCAGGCACTCAAGTTGTGCAGGGACAGATCCAGACACTTGCCACCAAT
GCTCAACAGATTACACAGACACAGGGTCCAGCAAGGACAGCAGCAGTTCAAGCCAGTTCAC
AAGATGGACAGCAGCTCTACCAGATCCAGCAAGTCACCATGCCTGCGGGCCANGACCTCG
CCAGCCCATGTTCATCCAGTCAAGCCAACCAGCCCTTCNACGGGCAGGCCCCCCAGGTGAC
CGGCGACTGAAGGGCCTGACCTGGCAAGCGCCAANGACACCCAACACAATTTTTTGCCATAC
AGCCCCCAGGCAATGGGCACAGCCTTTCTTCCCAGAGGAC

13710-1

TGAGATTTATTGCATTTCATGCAGCTTGAAGTCCATGCAAAGGRGACTAGCACAGTTTTTA
ATGCATTTAAAAAAATAAAACGGAGGTGGGCAGCAAACACACAAAGTCCTAGTTTCCTGGG
TCCCTGGGAGAAAAGAGTGTGCCAATGAATCCACCCACTCTCCACAGGGAATAAATCTGT
CTCTTAAAATGCAAAGAATGTTTCCATGGCCTCTGGATGCAAATACACAGAGCTCTGGGGTC
AGAGCAAGGGATGCGGCACAGGACCACCAGTGAAAAAGCAGCTACACACATTCACCTAAT
TCCATCTGAGGGCAAGAACAAACGTGCCAAGTCTTGGGGGTACCAGCTGTT

13711.1

TCCAGACATGCTCCTGTCCTAGCCCGGCACCAGGAACCAGACCTGCTATGGGAAGCAGAA
AGAGTTAAGGGAAGGTTTCCTTTCATTCCTGTTCCTTCTCTTTGCTTTTGAACAGTTTTTA
AATATACTAATAGCTAAGTCATTTGCCAGCCAGGTCCCGGTGAACAGTAGACAACAAGGA
GCTTGCTAAGAATTAATTTTTGCTGTTTTTCACCCCATTCAAACAGAGCTGCCCTGTTCCCTG
ATGGAGTTCCATTCCTGCCACGGCACGGCTGAGTAACACGAAGCCATTCAAGAAAGGCGG
GTGTGRAATCACTGCCACCCCATGGACAGACCCCTCACTCTTCCTTCTTAGCCCGCAGCGCT
ACTTAATAAATATATTTATACTTTGAAATTATGATAACCGATTTTCCCATGCGGCATCCTA
ACGGCACTTGCCACCTCTTATCCGGACAGTCAAGCACTGTTGTTGGACAACAGATAAAGG
AAAAGAAAAAGAAGAAAAACAACCGCAACTTCTGT

FIG. 15L

13711.2

```
TGAGACGGACCACTGGCCTGGTCCCCCCTCATKTGCTGTCGTAGGACCTGACATGAAACGC
AGATCTAGTGGCAGAGAGGAAGATGATGAGGAACTTCTGAGACGTCGGCAGCTTCAAGAA
GAGCAATTAATGAAGCTTAACTCAGGCCTGGGACAGTTGATCTTGAAAGAAGAGATGGAG
AAAGAGAGCCGGGAAAGGTCATCTCTGTTAGCCAGTCGGCTACGATTCTCCCATCAACTCAG
CTTCACATATTCCATCATCTAAAACTGCATCTCTCCCTGGCTATGGAAGAAATGGGCTTCA
CCGGCCTGTTTCTACCGACTTCGCTCAGTATAACAGCTATGGGGATGTCAGCGGGGGAGTG
CGAGATTACCAGACACTTCCAGATGGCCACATGCCTGCAATGAGAATGGACCGAGGAGTG
TCTATGCCCAACATGTTGGAACCAAAGATATTTCCATATGAAATGCTCATGGTGACCAACA
GAGGGCCGAAACCAAATCTCAGAGAGGTGGACAGAA
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13713.1&2

```
TCACTTTATTTTTCTTGTATAAAAACCCTATGTTGTAGCCACAGCTGGAGCCTGAGTCCGCT
GCACGGAGACTCTGGTGTGGGTCTTGACGAGGTGGTCAGTGAACTCCTGATAGGGAGACT
TGGTGAATACAGTCTCCTTCCAGAGGTCGGGGGGTCAGGTAGCTGTAGGTCTTAGAAATGGC
ATCAAAGGTGGCCTTGGCGAAGTTGCCCAGGGTGGCAGTGCAGCCCCGGGCTGAGGTGTA
GCAGTCATCGATACCAGCCATCATGAG
```

13715.4

```
CTGGAATATAGACCCGTGATCGACAAAACTTTGAACGAGGCTGACTGTGCCACCGTCCCGC
CAGCCATTCGCTCCTACTGATGAGACAAGATGTGGTGATGACAGAATCAGCTTTTGTAATT
ATGTATAATACCTCATGCATGTGTCCATGTCATAACTGTCTTCATACCCTTCTGCACTCTGG
GGAAGAAGGAGTACATTGAAGGGAGATTGCCACCTAGTGGCTGGGAGCTTGCCAGGAACC
CAGTGGCCCAGGGACCGTGCCACTTACCTTTGTCCCTTGCTTCATTCTTGTGAGATGATAAA
ACTGGGCACAGCTCTTAAATAAAATATAAATGAACA
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13717.1&2

```
TGAATGGGCACGAGCTGACCCACCAAATGCACCTTGNGGAGACCAGGCCTGCAGGGCAT
GGAACCTTCCAGAAGTGGGCATCTGTGCTGGTGCCTCTTGGGAAGGAGCAGAAGTACACA
TGCCATGTGCAACATCAGGGGCTGCCTGAGCCCCTCACCCTGAGATCGGGCAAGGAGGAG
CCTCCTTCATCCACCAAGACTAACACAGTAATCATTGCTGTTCCGCTTGTCCTTGGAGCTGT
GGTCATCCTTGGAGCTGTGATGGCTTTTGTGATGAAGAGGAGGAGAAAACACAGGTGGAAA
AGGAGGGGACTATGCTCTGGCTCCAGGCTCCCAGAGCTCTGATATGTCTCTCCCAGATTGT
AAAGTGTGAAGACAGCTGCCTGGTGTGGACTTGGTGACAGACAATGTCTTCACACATCTCC
TGTGACATCCAGAGACCTCAGTTCTCTTACTCAAGTGTCTGATGTTCCCTGTGAGTCTCCG
GGCTCAAAGTGAAGAACTCTGGCAGCCCAGTCCACCCCTGCACACCAGGACCCTATCCCTG
CACTGCCCTGTGTTCCCTTCCACAGCCAACCTTGCTGCTCCAGCCAAACATTGGTGGACAT
CTGCAGCCTGTCAGCTCCATGCTACCCTGACCTTCAACTCCTCACTTCCACACTGAGAATA
ATAATTGAATGTGGGTGGCTGCACAGATGGCTCAGCGGCTGACTGCTCTTCCAAAGGTCCT
GAGTTCAAATCCCAGCAACCACATGGTGGCTCACAACCATCTGTAATGGGATCTAATACCC
TCTTCTGCAGTGTCTGAAGACASCTACAGTGTACTTACATATAATAATAAATAAG
```

FIG. 15M

13719.1&2

```
GGCCGGGCGCGCGCGCCCCCGCCACACGCACGCCGGGCGTGCCAGTTTATAAAGGGAGAG
AGCAAGCAGCGAGTCTTGAAGCTCTGTTTGGTGCTTTGGATCCATTTCCATCGGTCCTTAC
AGCCGCTCGTCAGACTCCAGCAGCCAAGATGGTGAAGCAGATCGAGAGCAAGACTGCTTT
TCAGGAAGCCTTGGACGCTGCAGGTGATAAACTTGTAGTAGTTGACTTCTCAGCCACGTGG
TGTGGGCCTTGCAAAATGATCAAGCCTTTCTTTCATTCCCTCTCTGAAAAGTATTCCAACGT
GATATTCCTTGAAGTAGATGTGGATGACTGTCAGGATGTTGCTTCAGAGTGTGAAGTCAAA
TGCATGCCAACATTCCAGTTTTTTAAGAAGGGACAAAAGGTGGGTGAATTTTCTGGAGCCA
ATAAGGAAAAGCTTGAAGCCACCATTAATGAATTAGTCTAATCATGTTTTCTGAAAATATA
ACCAGCCATTGGCTATTTAAAACTTGTAATTTTTTTAATTTACAAAAAATATAAAATATGAA
GACATAAACCCMGTTGCCATCTGCGTGACAATAAAACATTAATGCTAACACTT
```

13721.1

```
TCACATAAGAAATTTAAGCAAGTTACRCTATCTTAAAAAACACAACGAATGCATTTTAATA
GAGAAACCCTTCCCTCCCTCCACCTCCCTCCCCCACCCTCCTCATGAATTAAGAATCTAAG
AGAAGAAGTAACCATAAAACCAAGTTTTGTGGAATCCATCATCCAGAGTGCTTACATGGT
GATTAGGTTAATATTGCCTTCTTACAAAATTTCTATTTTAAAAAAAAATTATAACCTTGATTG
CTTATTACAAAAAAATTCAGTACAAAAAGTTCAATATATATTGAAAAATGCTTTTCCCCTCCCT
CACAGCACCGTTTTATATATAGCACAGAATAATGAAGAGATTGCTAGTCTAGATGCGGCA
ATCTTCAAATTACACCAAGACGCACAGTGGTTTATTTACCCTCCCCTTCTCATAAG
```

13721.2

```
GGAAAGGATTCAAGAATTAGAGGACTTGCTTGCTRRAGAAAAAGACAACTCTCGTCGCAT
GCTGACAGACAAAGAGAGAGACATGGCCGAAATAACGGATCAAATGCAGCAACACCTGA
ATGACTATGAACAGCTTCTTGATGTAAAGTTAGCCCTGGACATGGAAATCAGTGCTTACAG
GAAACTCTTAGAAGGCGAAGAAGACACCTTGAAGCTGTCTCCAAGCCCTTCTTCCCGTGT
GACAGTATCCCGAGCATCCTCAAGTCGTAGTGTACCGTACAACTAGAGGAAAGCGGAAGA
GGGTTGATGTGGAAGAATCAGACCCGAACTAGTAGTGTTAGCATCTCTCATTCCGCCTCAA
CCACTGGAAATGTTTGCATCGAAGAAATTGATCTTGATGGGAAATTTATCCCGCTTGAAGA
ACACTTCTGAACAGGATCAAACCAATGGCAACCCTTGGGAGATGATCAGAAAAATTCCAGA
CACATCAGTCAGTTATAAATATACCTCAA
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13723.1

```
CATGGGTTTCACCAGGTTGGCCAGCCTGCTCTTGAACTSCTGACCTCAGGTGATCCACCCG
CCTCGCCCTCCCAAAGTCCTGGGATTACAGGCCTGAGCCACCACGCCCGGCCCCCAAAGC
TGTTTCTTTTGTCTTTAGCGTAAAGCTCTCCTGCCATGCAGTATCTACATAACTGACGTGAC
TGCCAGCAAGCTCAGTCACTCCGTGGTCTTTTCTCTTTCCAGTTCTTCTCTCTCTCTTCAAG
TTCTGCCTCAGTGAAAGCTGCAGGTCCCCAGTTAAGTGATCACGGTGAGGGTTCTTTGAACC
TGGTTCTATCAGTCGAATTAATCCTTCATGATGG
```

FIG. 15N

13723.2

GATGTGTTGGACCCTCTGTGTCAAAAAAACCTCACAAAGAATCCCCTGCTCATTACAGAA
GAAGATGCATTTAAAATATGGGTTATTTTCAACTTTTTATCTGAGGACAAGTATCCATTAA
TTATTGTGTCAGAAGAGATTGAATACCTGCTTAAGAAGCTTACAGAAGCTATGGGAGGAG
GTTGGCAGCAAGAACAATTTGAACATTATAAAATCAACTTTGATGACAGTAAAAATGGCC
TTTCTGCATGCGAACTTATTGAGCTTATTGGAAATGGACAGTTTAGCAAAGGCATGGACCG
GCAGACTGTGTCTATGGCAATTAATGAAGTCTTTAATGAACTTATATTAGATGTGTTAAAG
CAGGGTTACATGATGAAAAAGGGCCACAGACGGAAAAACTGGACTGAAAGATGGTTTGTA
CTAAAACCCAACATAATTTCTTACTATGTGAGTGAGGATCTGAAGGATAAGAAAGGAGAC
ATTCTCTTGGATGAAAATTGCTGTGTAGAAGTCCTTGCCTGACAAAAGATGGAAAGAAAT
GCCTTTT

13725.1

GACTGGTTCTTTATTTCAAAAAGACACTTGTCAATATTCAGTRTCAAAACAGTTGCACTATT
GATTTCTCTTTCTCCCAATCGGCCCCAAAGAGACCACATAAAAGGAGAGTACATTTTAAGC
CAATAAGCTGCAGGATGTACACCTAACAGACCTCCTAGAAACCTTACCAGAAAATGGGGA
CTGGGTAGGGAAGGAAACTTAAAAGATCAACAAACTGCCAGCCCACGGACTGCAGAGGCT
GTCACAGCCAGATGGGGTGCCCAGCGTGCCACAAACCCAAAGCAAAGTTTCAAAATAATA
TAAAATTTAAAAAGTTTTGTACATAAGCTATTCAAGATTTCTCCAGCACTGACTGATACAA
AGCACAATTGACATGCCACTTCTAGAGACAGCAGCCTTCAAACCCAGAAAAGGGTGATGAG
ATGAAGTTTCACATGGCTAAAATCAGTGGCAAAAACACAGTCTTCTTTCTTTCTTTCTTTCAA
GGANGCAGGAAAGCAATTAAGTCGTCACCTTAACATAAGGGGGAC

13725.2

TGGGTGGGCACCATGGCTGGGATCACTACCATCGAGCGCGGTGAAGCGCAAGATCCAGGTT
CTGCAGCAGCAGGCACATGATGCAGAGGACCGAGCTGACCGCCTCCACCGAGAAGTTGA
GGGAGAAAGCGGGCCCGGGAACACGGCTGAGCCTGACCTGCCCTCCTTGAACCGTAGGA
TCCACCTGGTTGAAGAAGAGCTGGACCGTCCTCAGGAGCGCCTGGCCACTGCCCTGCAAA
AGCTGGAAGAAGCTGAAAAAGCTCCTGATGACACTGAGAGACGTATGAAGGTTATTGAA
AACCGGGCCTTAAAAAGATCAAGAAAAAGATCCAACTCCAGGAAATCCAACTCAAAGAAGC
TAAGCACATTGCAGAAGAGCCACATAGCAAGTATGAAGACGTGCCTCGTAAGTTGCTGAT
CATTGAAGGAGACTTGGAACCGCACAGAAGCAACGACCTTGAGCCTTGGCAAAAGTCCCGT
TGCCCAGAGATGCGGATGAACCACATTAGACTGATGGACCANAACC

13726.1&2

AGGGGCNGCGGGTGCGTGGGCCACTGGGTGACCGACTTAGCCTGGCCAGACTCTCAGCAC
CTGGAAGCGCCCCGAGAGTGACAGCGTGAGGCTGGGCAGGGAGGACTTGGCTTGAGCTTGT
TAAACTCTGCTCTGAGCCTCCTTGTCGGCCTGCATTTAGATGCCTCCCGCAAACAAGGGTGG
CGAGAAGAAAAAGGGGCCGTTCTGCCATCAACGAAGTGGTAACCCGAGAATACACCATCAA
CATTCACAAGCGCATCCATGCAGTGGGCTTCAAGAAGCCTGCACCTCGGGCCACTCAAAGA
GATTCGGAAATTTGCCATCAAGGAGATCGGAACTCCAGATGTCGCGCATTGACACCAGGCT
CAACAAAGCTGTCTGGGCCAAAGCAATAAACGAATGTGCCATACCGAATCCGGTCGTGCGGC
TGTCCAGAAAACGTAATGACGATGAAGATTCACCAAATAAGCTATATACTTTGGTTACCTA
TGTACCTGTTACCACTTTCAAAAATCTACAGACAGTCAATGTGGATGAGAACTAATCGCTG
ATCGTCAGATCAAATAAAGTTATAAAAT

FIG. 150

13727.1

TCGGGAGCCACACTTGGCCCTCTTCCTCTCCAAAGSGCCAGAACCTCCTTCTCTTTGGAGAA
TGGGGAGGCCTCTTGGAGACACAGAGGGTTTCACCTTGGATGACCTCTAGAGAAATTGCC
CAAGAAGCCCACCTTCTGGTCCCAACCTGCAGACCCCACAGCAGTCAGTTGGTCAGGCCCT
GCTGTAGAAGGTCACTTGGCTCCATTGCCTGCTTCCAACCAATGGGCAGGAGAGAAGGCC
TTTATTTCTCGCCCACCCATTCCTCCTGTACCAGCACCTCCGTTTTCAGTCAGTGTTGTCCA
GCAACGGTACCGTTTACACAGTCACCTCAGACACACCATTTCACCTCCCTTGCCAAGCTGT
TAGCCTTAGAGTGATTGCAGTGAACACTGTTTACACACCGTGAATCCATTCCCATCAGTCC
ATTCCAGTTGGCACCAGCCTGAACCATTTGGTACCTGGTGTTAACTGGAGTCCTGTTTACA
AGGTGGAGTCGGGGCTTGCTGACTTCTCTTCATTTGAGGGCAC

13727.2

ACCTAGACAGAAGGTGGGTGAGGGAGGACTGGTAGGAGGCTGAGGCAATTCCTTGGTAGT
TTGTCCTGAAACCCTACTGGAGAAGTCAGCATGAGGCACCTACTGAGAGAAGTGCCCAGA
AACTGCTGACTGCATCTGTTAAGAGTTAACAGTAAAGAGGTAGAAGTGTGTTTCTGAATCA
GAGTGGAAGCGTCTCAAGGGTCCCACAGTGGAGGTCCCTGAGCTACCTCCCTTCCGTGAGT
GGGAAGAGTGAAGCCCATGAAGAACTGAGATGAAGCAAGGATGGGGTTCCTGGGCTCCA
GGCAAGGGCTGTGCTCTCTGCAGCAGGGAGCCCCACGAGTCAGAAGAAAAGAACTAATCA
TTTGTTGCAAGAAACCTTGCCCGGATACTAGCGGAAAACTGGAGGCGGNGGTGGGGGCAC
AGGAAAGTGGAAGTGATTTGATCCAGAGCACAGAAGCCTATGCACAGTGCCCGACTCCAC
TTGTAAAGTG

13728.1&2

TTCAAGCAATTGTAACAAGTATATCTAGATTAGAGTGAGCAAAATCATATACAATTTTCAT
TTCCAGTTGCTATTTTCCAAATTGTTCTGTAATGTCGTTAAAATTACTTAAAAATTAACAAA
GCCAAAAATTATATTTATGACAAGAAAGCCATCCCTACATTAATCTTACTTTTCCACTCAC
CGGCCCATCTCCTTCCTCTTTTTCCTAACTATGCCATTAAAAACTGTTCTACTGGGCCGGGCG
TGTGGCTCATGCCTGTAATCCCAGCATTTTGGGCAGGCCCAAGGCAGGCGGATCATGAGGTC
AAGAGATTGAGACCATCCTGGCCAACATGGTGAAACCCCGCCTCGACTAAGAATACAAAA
ATTAGCTGGGCATGGTGGCGCCATGCCTGTAGTCTCAGCTACTCGGGAGGCTGAGGCAGAA
GAATCGCTTGAACCCGGGAGGCAGAGCATGCAGTGAGCCCCGATCGCGCCACTGCACTCT
AGCCTGGGCGACAGACTGAGACTCTGCTC

13731.1&2

TGTGCCAGTCTACAGCCCTATCAGCAGCGACTCCTTCAGCAACAGATGGGGTCCCCTGTTC
AGCCCAACCCCATGAGCCCCCAGCACCATATGCTCCCAAATCAGGCCCAGTCCCCACACCT
ACAAGGCCAGCAGATCCCTAATTCTCTCTCCAATCAAGTCCGCTCTCCCCAGCCTGTCCCTT
CTCCACGGCCACAGTCCCAGCCCCCCCACTCCAGTCCTTCCCCAAGGATGCAGCCTCAGCC
TTCTCCACACCACGTTTCCCCACAGACAAGTTCCCCACATCCTGGACTGGTAGTTGCCCAG
GCCAACCCCATGGAACAAGGGCATTTTGCCAGCC

FIG. 15P

13734.1&2

TGTAAAAACTTGTTTTTAATTTTGTATAAAATAAAGGTGGTCCATGCCCACGGGGGCTGTA
GGAAATCCAAGCAGACCAGCTGGGGTGGGGGGATGTAGCCTACCTCGGGGGACTGTCTGT
CCTCAAAACGGGCTGAGAAGGCCCGTCAGGGGCCCAGGTCCCACAGAGAGGGCCTGGGATA
CTCCCCCAACCCGAGGGGGCAGACTGCGCAGTGGGGAGCCCCCATCGTGCCCCAGAGGTGG
CCACAGGCTGAAGGAGGGCCCTGAGGCACCGCAGCCTGCAACCCCCAGGGCTGCAGTCCA
CTAACTTTTTTACAGAATAAAAGGAACATGGGGATGGGGAAAAAAAGCACCAGGTCAGGCA
GGGCCCGAGGGCCCCAGATCCCAGGAGGGCCCAGGACTCAGGATGCCAGCACCACCCTAGC
AGCTCCCACAGCTCCTGGCACAGGAGGCCGCCACGGATTGGCACAGGCCGCTGCTGGCCA
TCACGCCACATTTGGACAACTTGTCCCGACAGAGGTCAGCTCGGAGGAGCTCCTCGTGGGC
ACACACTGTACGAACACAGATCTCCTTGTTAATGACGTACACACGGCGGAGGCTGCGGGG
ACAGGGCACGGGAGGTCTCAGCCCCACTT

13736.2

ATGGCTGCTGGATTTACGTGGTAATACGGGGCTGTGGGCCATAAATCTGAAGCCTTGAGAA
CCTTGGGTCTGGAGAGCCATGAAGAGGGAAGGAAAAGAGGGCAAGTCCTGAACCTAACC
AATGACCTGATGGATTGCTCGACCAAGCACACAGAAGTGAAGTCTGTGTCTGTGCACTTCCC
ACAGACTGGAGTTTTTGGTGCTGAATAGAGCCAGTTGCTAAAAAAATTGGGGGTTTGGTGA
AGAAATCTGATTGTTGTGTGTATTCAATGTGTGATTTTAAAAAATAAACAGCAACAACAATA
AAAACCCTGACTGGCTGTTTTTTCCCTCTATTCTTTACAACTATTTTTTTGACCCTCTGAAAA
TTATTATACTTCACCTAAAATGGAAGACTGCTGTGTGTTTGTGGAAATTTTGTAATTTTTTAATT
TATTTTATTCTCTCTCCTTTTTATTTGCCTGCAGAATCCGTTGAGACACTAATAAGGCTTA
ATATTTAATTGATTTGTTTAATATGTATATAAAT

13744.2-13696.2

GGCATGCGAGCGCACTCGGTGGACGCAAGGGCGGCGCGGCAGCACACGGAGCACTGCAGG
CGCCGGGTTCGGCACAGCGTCTTCGCTCCTGCTGGATAGTCGTGTTTTCGGGCGATCGAGGAT
ACTCACCAGAAACCCAAAATGCCGAAACCAATCAATGTCCGAGTTACCACCATGGATGCA
GAGCTCGGAGTTTGCAATCCAGCCAAATACAACTGGAAAACAGCTTTTTGATCAGGTGGTA
AAGACTATCGGCCTCCGGGAAGTGTGGTACTTTGGCCTCCACTATGTGGATAATAAAGGAT
TTCCTACCTGGCTGAAGCTGGATAAGAAGCGTGTCTGCCCAGGAGGTCAGGCAAGGAGAATC
CCCTCCAGTTCAAGTTCGGCGCCCAAAGCTTCTACCCTGAAGCATGTGGCTGAGGAGCTCATCC
AGGACATCACCCAGAAACTTTTGTTCCTTCAAGTGAACGAAGGCAATCCTTAGCCGATGAGAT
CTACTGCCCCCCTTGAGACTGCCCGTGCTCTTGGGGTCCTACGCTTGTGCATGCCAAGTTTGG
GGACTACCACCAAGAAG

13746.1&2-13720.1&2

GAAGGACTCGGGATACTCAGCATTGATGCACCCCAATTTCAAAGCGGCATTCTTCGGCAG
GTCTCTGGCACAATCTCTAGGGTCACTACCTGCAAACTCGTTAGGGTACAACTGAATGCTG
AAAGGCAAAGAACACCTGCAGAACCGGCACAGAAATTCACCCCGGCGATCAGCTGATTGATC
TCGGTCGACCAGAAGTCATGGCTAAAAGATGACGAGGACGTTGTCAATTCCCTCGGCTTTTC
GAAGTGAGTCCAGCAGCAGTCTGAGCTATTCCGGCCCGGTTATGCACCTGGACCACCAGCA
CCAGCTCCCCGGGGGGCCCAGCTGCCAGCCTTATCTACATTCCTCAGGGTCTGATCAAAGTT
CAGCTGGTACACCAGGGACCGGTACCCCAGCCGTCAGGTTGTCCGCTCGGGCTGGGGGACC
GCCGGCACCAGGGAAGCCGCCGACACGTTGGACACCCTGCCCGATGCCCACAGCCACAGAG
GGGTCCTCCCACCGCGGCGCGCGGGCACCCGCGCGGCTTCGGCGTCCAGCAACGGTGGG
GCGAGGGCCTCGTTCTTCCTTTGTCGCCCATTGCTGCTCCAGAGGACGAAGCCGCAGGCGG
CCACCACGAGCGTCAGGATTACCACCTTCCGTTTGTAGATGCGGAACCTCATCGTCTCCAG
GGCCGGGAGCGCAGCTACAGCTCGAGCGTCGCCGCGCCGCCGCTAGGAGCCGCGGCTCGGCT
TCGTCTCCGTCCTCTCCATTCAGCACCACGCGTCCCGGAAAAAGCTCAGCCGCGGTCCCAA
CCGCACCCTAGCTTCGTTACCTGCGCCTCGCTTG

FIG. 15Q

14347.1

CAGATTTTTATTTGCAGTCGTCACTGGGGCCGTTTCTTGCTGCTTATTTGTCTGCTAGCCTG
CTCTTCCAGCTGCATGGCCAGGCGCAAGGCCTTGATGACATCTCGCAGGGCTGAGAAATGC
TTGGCTTGCTGGGCCAGAGCAGATTCCGCTTTGTTCACAAAGGTCTCCAGGTCATAGTCTG
GCTGCTCGGTCATCTCAGAGAGCTCAAGCCAGTCTGGTCCTTGCTGTATGATCTCCTTGAG
CTCTTCCATAGCCTTCTCCTCCAGCTCCCTGATCTGAGTCATGGCTTCGTTAAAGCTGGACA
TCTGGGAAGACAGTTCCTCCTCTTCCTTGGATAAATTGCCTGGAATCAGCGCCCCGTTAGA
GCAGGCTTCCATCTCTTCTGTTTCCATTTGAATCAACTGCTCTCCACTGGGCCCACTGTGGG
GGCTCAGCTCCTTGACCCTGCTGCATATCTTAAGGGTGTTTAAAGGATATTCACAGGAGCT
TATGCCTGGT

14347.2

CTCCTCTTGGTACATGAACCCAAGTTGAAAGTGGACTTAACAAAGTATCTGGAGAACCAA
GCATTCTGCTTTGACTTTGCATTTGATGAAACAGCTTCGAATGAAGTTGTCTACAGGTTCAC
AGCAAGGCCACTGGTACAGACAATCTTTGAAGGTGGAAAAGCAACTTGTTTTGCATATGG
CCAGACAGGAAGTGGCAAGACACATACTATGGGCGGAGACCTCTCTGGGAAAGCCCAGAA
TGCATCCAAAGGGATCTATGCCATGGCCTTCCGGGACGTCTTCTTCTGAAGAATCAACCCT
GCTACCGGAAGTTGGGCCTGGAAGTCTATGTGACATTCTTCGAGATCTACAATGGGAAGCT
GTTTGACCTGCTCAACAAGAAGCCCAAGCTTGCCCGTGCTGGAAGACGCCAAGCAACAGG
TGCAAGTGGTGGGGGCTTGCAGGAACATCTGGNTAACTCTGCTTGATGATGGCANTCAAG
ATGATCGACATGGGCAGCGCCTGCACA

14348.2 & 14350.1&2

TCCCGAATTCAAGCGACAAATTGGAWAGTGAAATGGAAGATGCCTATCATGAACATCAGG
CAAATCTTTTGCGCCAAGATCTGATGAGACGACAGGAAGAATTAAGACGCATGGAAGAAC
TTCACAATCAAGAAATGCAGAAAACGTAAAGAAATGCAATTGAGGCAAGACGAGGAACGA
CGTAGAAGAGAGGAAGAGATGATGATTCGTCAACGTGAGATGGAAGAACAAATGAGGCG
CCAAAAGAGAGGAAAGTTACACCCGAATGGGCTACATGGATCCACGGGAAAGAGACATGC
GAATGGGTGGCGGAGGACGCAATGAACATGGGAGATCCCTATGGTTCAGGAGGCCAGAAA
TTTCCACCTCTAGGAGGTCGTGGTGGCATAGCTTATGAAGCTAATCCTGGCGTTCCACCAG
CAACCATGAGTGGTTCCATGATGGGAAGTGACATGCGTACTGAGCGCTTTGGGCAGGGAG
GTGCCGGGGCCTGTGGGTGGACAGCGTCCTAGAGGCAATGGGGGCCTGGAACTCCAGCAGGAT
ATGGTAGAGGGAGAGAAGAGTACGAACGC

14349.1&2

TTCGTGAAGACCCTGACTGCTAAGACCATCACTCTCGAACTGCAGCCCGAGTGACACCATT
GACAATGTCAAGGCAAAGATCCAAGACAAGGAAACGGCATCCCTCCTGACCAGCAKAGGTTG
ATCTTTGCTGGGAAACAGCTGGAAGATGGCACGCACCCTGTCTGACTACAACATCCAGAAA
GAGTCCACCCTGCACCTGGTGCTCCGTCTCAGACGTGCGGATGCAAATCTTCGTGAAGACCC
TGACTGGTAAGACCATCACCCTGGAGCTGGAGCCCAGTGACACCATCGAGAATGTCAAGG
CAAAGATCCAAGATAAGGAAGGCATCCCTCCTGATCAGCAGAGGTTGATCTTTGCTGGGA
AACAGCTGGAAGATGGACGCACCCTGTCTGACTACAACATCCAGAAAGAGTCCACTCTGC
ACTTGGTCCTGCGCTTCAGGGGCGGTGTCTAAGTTTCCCCTTTTTAAGGTTTCAACAAATTTC
ATTGCACTTTCCTTTCAATAAAGTTGTTGCATTC

FIG. 15R

14352.1&2

GCGCGGGTGCGTGGGCCACTGGGTGACCGACTTAGCCTGGCCAGACTCTCAGCACCTGGA
AGCGCCCCGAGAGTGACAGCGTGAGGCTGGGAGGGAGGACTTGGCTTGAGCTTGTTAAAC
TCTGCTCTGAGCCTCCTTGTCGCCTGCATTTAGATGGCTCCCGCAAAGAAGGGTGGCGAGA
AGAAAAAGGGCCGTTCTGCCATCAACGAAGTGGTAACCCGAGAATACACCATCAACATTC
ACAAGCGCATCCATGGAGTGGGCTTCAAGAAGCGTGCACCTCGGGCACTCAAAGAGATTC
GGAAATTTGCCATGAAGGAGATGGGAACTCCAGATGTGCGCATTGACACCAGGCTCAACA
AAGCTGTCTGGGCCAAAGGAATAACGAATGTGCCATACCGAATCCGTGTGCGGCTGTCCA
GAAAACGTAATGAGGATGAAGATTCACCAAATAAGCTATATACTTTGGTTACCTATGTACC
TGTTACCACTTTCAAAAATCTACAGACAGTCAATGTGGATGAGAACTAATCGCTGATCGT

14353.1

AATTCTTTATTTAAATCAACAAACTCATCTTCCTCAAGCCCCAGACCATGGTAGGCAGCCC
TCCCTCTCCATCCCCTCACCCCACCCCTTAGCCACAGTGAAGGGAATGGAAAATGAGAAGC
CACGAGGGCCCCTGCCAGGGAAGGCTGCCCCAGATGTGTGGTGAGCACAGTCAGTGCAGC
TGTGGCTGGGGCAGCACCTGCCACAGGCTCCTCCCTATAAATTAAGTTCCTGCAGCCACAG
CTGTGGGAGAAGCATACTTGTAGAAGCAAGGCCAGTCCAGCATCAGAAGGCAGAGGCAG
CATCAGTGACTCCCAGCCATGGAATGAACGGAGGACACAGAGCTCAGAGACAGAACAGG
CCAGGGGGAAGAACGAGAGACAGAATAGGCCAGGGCATGGCGGTGAGGGA

14353.2

TGATGAATCTGGGTGCCCTGGCAGTAGCCCGACATGATGGGCTCTTCTCTGGGGATCCCAA
CTGCTTCCCTAAGAAATCCAAGGAGAATCCTCGCAACTTCTCGGATAACCACCTGCAAGA
GGGCAAGAACGTGATCGGCTTACAGATGGGCACCAACCCGCGGGGCCGTCTCAAGCAGGCAT
GACTGGCTACGGGATCCCACGCCACATCCTCTGATCCCACCCCAGCCCTTGCCCCTGCCCT
CCCACCGAATGGTTAATATATATGTAGATATATATTTTAGCAGTGACATTCCCAGAGAGCCC
CAGAGCTCTCAAGCTCCTTTCTGTCAGGGTGGGGGGTTCAAGCCTGTCCTGTCACCTCTGA
AGTGCCTGCTGGCATCCTCTCCCCCATGCTTACTAATACATTCCCTTCCCCATAGCC

17182.1&2

AGCGGAGCTCCCTCCCCTGCTGGCTACAACCCACACACGCCAGGCTCAGGCATCGAGCAG
AACTCCAGCGACTGGGTAACCACTGACATTCAGGTGAAGGTGCGGGACACCTACCTGGAT
ACACAGGTGGTGGCACAGACACGTGTCATCCGCAGTGTCACGGGGGGGCATGTGCTCTGTG
TACCTGAAGGACAGTGAGAAGGTTGTCAGCATTTCCAGTGAGCACCTGGAGCCCTATCACC
CCCACCAAGAACAACAAGGTGAAAGTCATCCTGGGCGAGGATCGGGCAAGCCACGGGCGT
CCTACTGAGCATTGATGGTGACGATGGCATTGTCCGTATGGACCTTGATGAGCAGCTCAAG
ATCCTCAACCTCCGCTTCCTGGGGAAGCTCCTGGAAGCCTGAAGCAGGCAGGGCCGGTGG
ACTTCGTCGGATGAAGAGTGATCCTCCTTCCTTCCCTGGCCCTTGGCTGTGACACAAGATC
CTCCTGCACGGCTAGCGGGATTGTTCTGGATTTCCTTTTGTTTTTCCTTTTAGGTTTCCATCT
TTTCCCTCCCTGGTGCTCATTGGAATCTGAGTAGAGTCTGGGGGAGGGTCCCCACCTTCCT
GTACCTCCTCCCCACAGCTTGCTTTTGTTGTACCGTCTTTCAATAAAAAGAAGCTGTTTGGT
CTA

FIG. 15S

17183.2

GGTTCACAGCACTGCTGCTTGTGTGTTGCCGGCCAGGAATTCCAGGCTCACAAGGCTATCT
TAGCAGCTCGTTCTCCGGTTTTTAGTGCCATGTTTGAACATGAAATGGAGGAGAGCAAAAA
GAATCGAGTTGAAATCAATGATGTGGAGCCTGAAGTTTTTAAGGAAATGATGTGCTTCATT
TACACGGGGAAGGCTCCAAACCTCGACAAAATGGCTGATGATTTGCTGGCAGCTGCTGAC
AAGTATGCCCTCGGAGCGCTTAAAGGTCATGTGTGAGGATGCCCTCTGCAGTAACCTGTCCG
TGGAGAACGCTGCAGAAATTCTCATCCTGGCCGACCTCCACAGTGCAGATCAGTTGAAAA
CTCAGGCAGTGGATTTCATCAACTATCATGCTTCGGATGTCTTGGAGACCTCTTGGG

17186.1&2

TCGTAGCCATTTTTCTGCTTCTTTGGAGAATGACGCCACACTGACTGCTCATTGTCGTTGGT
TCCATGCCAATTGGTGAAATAGAACCTCATCCGGTAGTGGAGCCGGAGGGACATCTTGTC
ATCAACGGTGATGGTGCGATTTGGAGCATACCAGAGCTTGGTGTTCTCGCCATACAGGGCA
AAGAGGTTGTGACAAAGAGGAGAGATACGGCATGCCTGTGCAGCCCTGATGCACAGTTCC
TCTGCTGTGTACTCTCCACTGCCCAGCCGGAGGGGCTCCCTGTCCGACAGATAGAAGATCA
CTTCCACCCCTGGCTTG

1718̈7.1&2

TGGCACACTGCTCTTAAGAAACTATGA̅NGATCTGAGATTTTTTTGTGTATGTTTTTGACTCT
TTTGAGTGCTAATCATATGTGTCTTTATAGATGTACATACCTCCTTGCACAAATGGAGGGG
AATTCATTTTCATCACTGGGAGTGTCCTTAGTGTATAAAAACCATGCTCGTATATGGCTTC
AAGTTGTAAAAATGAAAGTGACTTTAAAAAGAAAATAGGCGATGGTCCACGATCTCCACTG
ATAAGACTGTTTTTAAGTAACTTAAGCACCTTTGGGTCTACAAGTATATGTGAAAAAAATG
AGACTTACTGGGTGAGGAAATTCATTGTTAAAGATGGTCGTGTGTGTGTGTGTGTGTGTGTG
TGTCTTGTGTTGTGTTTTGTTTTTAAGGGGAGGGAATTTATTATTTACCGTTGCTTGAAATT
ACTCXGTAAATATATGTYTCATAATGATTTGCTYTTTGVCMACTAAAAATTACGVCTGTATA
AGTWCTARATGCMTCCCTGGGKGTTGATYTTCCMAGATATTGATGATAMCCCTTAAAAATT
GTAACCYGCCTTTTTCCCTTTGCTYTCMATTAAAGTCTATTCMAAAG

17191.1&89.1

GGGCGTAGGCTCTTTATTAGACGGTTATTGCTGTACTACAGGGTCAGACTGCAGTGTAAGC
AGTGTCAGAGGCCCGCGTTCAGCCCAAGAATGTGGATTTTCTCTCCCTATTGATCACAGTG
GGTGGGTTCTTCAGAAAAGCCCCACAGCCAGGGACCAGTGAGCTCCAAGGTTAGAAGTG
GAACTGGAAGGCTTCAGTCACATGCTGCTTCCACGCTTCCAGGCTGGGCAGCAAGGAGGA
GATGCCCATGACGTGCCAGGTCTCCCCATCTGACACCAGTGAAGTCTGGTAGGACAGCAG
CCGCACGCCTGCCTCTGCCAGGAGGCCAATCATGGTAGGCAGCCATTGCAGGGTCAGAGGT
CTGAGTCCGGAATACGAGCAGGGGCAGGTCCCTGCGGAGAGGCACTTCTGGCCTGAAGAC
AGCTCCATTGAGCCCCTGCACTACAGGCYGTAGTGCCTTGGACCAAGCCCACAGCCTGGTA
AGGGCGCGCCTGCCAGGGCCACGGCCAGGAGCCA

FIG. 15T

17192.1&2

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TAATTTCTTAGTCGTTTCGAATCCTTAAGCATGCAAAAGCTTTGAACAGAAGGGGTTCACAA
AGGAACCAGGGTTGTCTTATGGCATCCAGTTAAGCCAGAGCTGGGAATGCCTCTGGGTCAT
CCACATCAGGAGCAGAAGCACTTGACTTGTCGGTCCTGCTGCCACGGTTTGGGCGCCCACC
ACGCCCACGTCCACCTCGTCCTCCCCTGCCGCCACGTCCTGGGCGGCCAAGGTCTCCAAAA
TTGATCTCCAGCTGAGACGTTATATCATTTGCTGGCTTCCGGAAATGATGGTCCATAACCG
AATCTTCAGCATGAGCCTCTTCACTCTTTGATTTATGAAGAACAAATCCCTTCTTCCACTGC
CCATCAGCACCTTCATTTGGTTTTCGGATATTAAATTCTACTTTTGCCCGGTCCTTATTTTGA
ATAGCCTTCCACTCATCCAAAGTCATCTCTTTTGGACCCTCCTCTTTTACCTCTTCAACTTCA
TTCTCCTTATTTTCAGTGTCTGCCACTGGATGATGTTCTTCACCTTCAGGTGTTTCCTCAGTC
ACATTTGATTGATCCAAGTCAGTTAATTCGTCTTTGACAGTTCCCCAGTTGTGAGATCCGCT
ACCTCCACGTTTGTCCTCGTGCTTCACGGCCAGATCTATCACTTCCACTATGCCTATCAAATT
CACGTTTGCCACGAGAATCAAATCCATCTCCTCGGCCCATTCCACGTCCACGGCCCCCTCG
ACCTCTTCCAAGACCACCACGACCTCGAATAGGTCGGTCAATAATCGGTCTATCAACTGAA
AATTCGCCTCCTTCACCCTTTTCTTCAAGTGGCTTTTCGAATCTTCGTTCACGAGGTGGTCG
CCTTTCTGGTCTTCTATCAATTATTTTCCCTTCACCCTGAAGTTGTTGATCAGGTCTTCTTCC
AACTCGTGC
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17193

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AACCGGATGGACCTGACTCAGCCGAATCCTAGCCCCTTCCCTTCGGCCTGCTGTGGTGCTC
GACATCAGTGACAGACGGAACCAGCACACCATCAAGGCTACGGGAGGCCCGCGGCGCTT
GCGAAGATGAAGTTTGCCTCCCTCTCCTTCCGGCACCCTTATGCTGGCTTTCTCTTAAATG
GAATCAAGACTGTGGACACCGCTCGCCGTCCTCTGCTGAGCAGCCACCGGAACTGTACCA
TCGCCGTCCACATTGCTCACAGGGACTGGCAAGGCCGATGCCTGTCGGGAGCTGCTGGTGG
AGACACTCGGGATGACTCCTCCTCAGATTCAGGCCTTCCTCAGCAAAGGGCAAAAGTTTG
GTCGAGGAGTGATACCCCCACTCGTTCACATTGGGGAAACTTTCCAATGCCCCGAAGACT
TAACTCCCGATGAGGTTCTCGAAACTACAAAATCAAGCTGCACTGACCAACCTGAAGCAGA
AGTACCTGACTCTGATTTCAAAACCCCAGGTGCTTACTGGAGCCCATACCTAGGAAAGGAG
GCAAGGATGTATTCCAGGTACACATCCCAGAGCACCTCATCCCTTTGGGGCATGAAGTGT
GACAAGTGTGGGCTCCTGAAAGGAATGTTCCRGAGAAAACCAGCTAAATCATGGCACCTTC
AATTTCCCATCGTCGACGCACACCTCTATAAATTAGCTTAAAGATGAATTTCCACTGCTTTG
GAGAGTCCCACCCACTAACCACTCTGCCATGTAAACAGGTTCCTTTGCTCAGATGAAGGAA
GTACGGGGCTGGGGCTTTCCTTCTGTCATGCCTCCTTAGGCACACAGCCAATGTCTCAAGTA
CTTTGACCTTAGGGTAGAAGGCAAAGCTGCCAGTAAATGTCTCAGCATTGCTGCTAATTTT
GGTCCTGCTAGTTTCTGGATTGTACAAATAAATGTGTTGTACATGA
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FIG. 15U

16443.1.edit

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TCGAGCGGCCGCCCGGGCAGGTGTCGGAGTCCAGCACGGGAGGCGTGGTCTTGTAGTTGT
TCTCCGGCTGCCCATTGCTCTCCCACTCCACGGCGATGTCGCTGGGATAGAAGCCTTTGAC
CAGGCAGGTCAGGCTGACCTGGTTCTTGGTCATCTCCTCCCGGGATGGGGGCAGGGTGTAC
ACCTGTGGTTCTCGGGCCTGCCCTTGGCTTTGGAGATGGTTTTCTCGATGGGGGCTGGGA
GGGCTTTGTTGGAGACCTTGCACTTGTACTCCTTGCCATTCAACCAGTCCTGGTGCANGAC
GGTGAGGACGCTNACCACACGGTACGNGCTGGTGTACTGCTCCTCCCGCGGCTTTGTCTTG
GCATTATGCACCTCCACGCCGTCCACGTACCAATTGAACTTGACCTCAGGGTCTTCGTGGC
TCACGTCCACCACCACGCATGTAACCTCAAANCTCGGNCGCGANCACGC
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16443.2.edit

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AGCGTGGTCGCGGCCGAGGTCTGAGGTTACATGCGTGGTGGTGGACGTGAGCCACGAAGA
CCCTGAGGTCAAGTTCAACTGGTACGTGGACGGCGTGGAGGTGCATAATGCCAAGACAAA
GCCGCGGGAGGAGCAGTACAACAGCACGTACCGTGTGGTCAGCGTCCTCACCGTCCTGCA
CCAGGACTGGCTGAATGGCAAGGAGTACAAGTGCAAGGTCTCCAACAAAGCCCTCCCAGC
CCCCATCGAGAAAACCATCTCCAAAGCCAAAGGGCAGCCCCGAGAACCACAGGTGTACAC
CCTGCCCCCATCCCGGGAGGAGATGACCAAGAACCAGGTCAGCCTGACCTGCCTGGTCAA
AGGCTTCTATCCCAGCGACATCGCCCCGTGGAGTGGGAGAGCAATGGGCAGCCGGAGAACA
ACTACAAGACCACGCCTCCCGTGCTGGACTCCGACACCTGCCGGGCGGCCGCTCGA
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16444.2.edit

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AGCGTGGTTNCGGCCGACCTCCCAACCAAGGCTGCANCCTGGATGCCATCAAAGTCTTCTG
CAACATGGAGACTGGTGAGACCTGCGTGTACCCCACTCAGCCCAGTGTGGCCCAGAAGAA
CTGGTACATCAGCAAGAACCCCAAGGACAAGAGCCATGTCTCGGTTCGGCGAGAGCATGAC
CGATGGATTCCAGTTCCAGTATGGCGGGCCAGGGCTCCGACCCTGCCGATGTGGACCTGCCC
GGGCGGNCGCTCGA
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16445.1.edit

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AGCGTGGTCGCGGCCGAGGTCAAGAACCCCGCCCGCACCTGCCGTGACCTCAAGATGTGC
CACTCTGACTGGAAGACTGCAGAGTACTGGATTGACCCCAACCAAGGCTGCAACCTGGAT
GCCATCAAAGTCTTCTGCAACATGGAGACTGGTGAGACCTGCGTGTACCCCACTCAGCCCA
GTGTGGCCCAGAAGAACTGGTACATCAGCAAGAACCCCAAGGACAAGAGGCATGTCTGGT
TCGGCGAGAGCATGACCGATGGATTCCAGTTCGAGTATGGCGGCCACGGCTCCGACCCTG
CCGATGTGGACCTGCCCGGGCGCCCGCTCGA
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FIG. 15V

16445.2.edit

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TCGAGCGGTCGCCCGGGCAGGTCCACATCGGCAGGGTCGGAGCCCTGGCCGCCATACTCG
AACTGGAATCGATCGGNCATGCTCTCGCCGAACCAGACATGCCTCTTGNCCTTGGGGTTCT
TGCTGATGTACCAGNTCTTCTGGGCCACACTGGGCTGAGTGGGGTACACGCAGGTCTCACC
ANTCTCCATGTTGCANAAGACTTTGATGGCATCCAGGTTGCAGCCTTGGTTGGGGTCAATC
CAGTACTCTCCACTCTTCCAGACAGAGTGGCACATCTTGAGGTCACGGCAGGTGCGGGCGG
GGTTCTTGACCTCGGTCGCGACCACGCT
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16446.1.edit

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TCGAGCGGCCGCCCGGGCAGGTCCTCCTCAGAGCGGTAGCTGTTCTTATTGCCCCGGCAGC
CTCCATAGATNAAGTTATTGCANGAGTTCCTCTCCACGTCAAAGTACCAGCGTGGGAAGG
ATGCACGGCAAGGCCCAGTGACTGCGTTGGCGGTGCAGTATTCTTCATAGTTGAACATATC
GCTGGAGTGGACTTCAGAATCCTGCCTTCTGGGAGCACTTGGGACAGAGGAATCCGCTGC
ATTCCTGCTGGTGGACCTCGGCCGCGACCACGCT
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16446.2.edit

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AGCGTGGTCGCGGCCGAGGTCCACCAGCAGGAATGCAGCGGATTCCTCTGTCCCAAGTGC
TCCCAGAAGGCAGGATTCTGAAGACCACTCCAGCGATATGTTCAACTATGAAGAATACTG
CACCGCCAACCCAGTCACTGGGCCTTGCCGTGCATCCTTCCCACGCTGGTACTTTGACGTG
GAGAGGAACTCCTGCAATAACTTCATCTATGGACGGCTGCCGGGGCAATAAGAACAGCTAC
CGCTCTGAGCAGGACCTGCCCGGCCGGCCCGCTCGA
```

16447.1.edit

```
TCGAGCGGCCGCCCGGGCAGGTCCACATCGGCAGGGTCGGAGCCCTGGCCGCCATACTCG
AACTGGAATCCATCGGTCATCCTCTCCCCGAACCAGACATGCCTCTTGTCCTTGGGGTTCT
TGCTGATGTACCAGTTCTTCTGGGCCACACTGGGCTGAGTGCGGTACACGCAGGTCTCACC
AGTCTCCATGTTGCAGAAGACTTTGATGCCATCCAGGTTGCAGCCTTGGTTGGGGTCAATC
CAGTACTCTCCACTCTTCCAGCCAGAATGCCACATCTTGAGGTCACGGCANGTGCGGGCGG
GGTTCTTGACCTCGGCCGCGACCACGCT
```

FIG. 15W

16447.2.edit

```
AGCGTGGTCGCGGCCGAGGTCAAGAAACCCCGCCCGCACCTGCCGTGACCTCAAGATGTG
CCACTCTGGCTGGAAGAGTGGAGAGTACTGGATTGACCCCAACCAAGGCTGCAACCTGGA
TGCCATCAAAGTCTTCTGCAACATGGAGACTGGTGAGACCTGCGTGTACCCCACTCAGCCC
AGTGTGGCCCAGAAGAACTGGTACATCAGCAAGAACCCCAAGGACAAGAGGCATGTCTGG
CTCGGCGAGAGCATGACCGATGGATTCCAGTTCGAGTATGGCGGCCAGGGCTCCGACCCT
GCCGATGTGGACCTGCCCGGGCGGCCGCTCGA
```

16449.1.edit

```
AGCGTGGTCGCGGCCGAGGTCCTGTCAGAGTGGCACTGGTAGAAGNTCCAGGAACCCTGA
ACTGTAAGGGTTCTTCATCAGTGCCAACAGGATGACATGAAATGATGTACTCAGAAGTGTC
CTGNAATGGGGCCCATGANATGGTTGNCTGAGAGAGAGCTTCTTGTCCTACATTCGGCGG
GTATGGTCTTGGCCTATGCCTTATGCGGGTGGCCGTTGNGGGCGGTGNGGTCCGCCTAAAA
CCATGTTCCTCAAAGATCATTTGTTGCCCAACACTGGGTTGCTGACCANAAGTGCCAGGAA
GCTGAATACCATTTCCAGTGTCATACCCAGGGTGGGTGACGAAAGGGGTCTTTTGAACTGT
GGAAGGAACATCCAAGATCTCTGNTCCATGAAGATTGGGGTGTGGAAGGGTTACCAGTTG
GGGAAGCTCGCTGTCTTTTTCCTTCCAATCANGGGCTCGCTCTTCTGAATATTCTTCAGGGC
AATGACATAAATTGTATATTCGGTTCCCGGTTCCAGGCCAG
```

16450.1.edit

```
TCGAGCGGCCGCCCGGGCAGGTCCACCACACCCAATTCCTTGCTGGTATCATGGCAGCCGC
CACGTGCCAGCATTACCGCCTACATCATCAAGTATGAGAAGCCTGGGTCTCCTCCCAGAGA
AGTGGTCCCTCGGCCCCGCCCTGGTGTCACAGAGGCTACTATTACTGGCCTCGAACCGCGA
ACCGAATATACAATTTATGTCATTGCCCTGAAGAATAATCACAACAGCGAGCCCCTGATTG
GAAGGAAAAACACAGACGAGCTTCCCCAACTGGTAACCCTTCCACACCCCAATCTTCATG
GACCAGAGATCTTGGATGTTCCTTCCACACTTCAAAACACCCCTTTCGTCACCCACCCTGG
GTATGACACTGCAAATGGTATTCAGCTTCCTGGCACTTCTGGTCAGCAACCCAGTGTTGGG
CAACAAATGATCTTTGANGAACATCCNTTTAGCGCGGACCACACCGGCCACAACGGGCACC
CCCATAAGGCATAGCCCAAGAAACATACCTGNCGAATGTAGGACAAGAAGCCTCTNTCTCAN
ACAANCATCTCATGGGCCCCATTCCANGACACTTCTGAGTACATCANTTCATGGCATCCTG
GTGGCACTGATAAAAAACCCTTACAGTTA
```

16450.2.edit

```
AGCGTGGTCGCGGCCGAGGTCCTGTCAGACTGGCACTGGTAGAAGTTCCAGGAACCCTGA
ACTGTAAGGGTTCTTCATCAGTGCCAACAGGATCACATGAAATGATGTACTCAGAAGTGTC
CTGGAATGGGGCCCATGAGATGGTTGTCTGAGAGAGAGCTTCTTGTCCTACATTCGGCGGG
TATGGTCTTGGCCTATGCCTTATCGGGGTGGCCGTTGTGGGCGGTGTGGTCCGCCTAAAAC
CATGTTCCTCAAAGATCATTTGTTGCCCAACACTGGGTTGCTGACCAGAAGTGCCAGGAAG
CTGAATACCATTTCCAGTGTCATACCCAGGGTGGGTGACGAAAGGCGTCTTTTGAACTGTG
GAAGGAACATCCAAGATCTCTGGTCCATGAAGATTGGGGTGTGGAAGCGTTACCAGTTGG
GGAAGCTCGTCTGTCTTTTTCCTTCCAATCANGGGCTCGCTCTTCTGATTATTCTTCAGGGC
AATGACATAAATTGTATATTCGGNTCCCCGGTNCAGCCAATAATAATAACCCTCTGTGACA
CCANGGCGGCGCCGAAGGANCACT
```

FIG. 15X

16451.1.edit

```
AGCGTGGTCGCGGCCGAGGTCCTCACCAGAGGTACCACCTACAACATCATAGTGGAGGCA
CTGAAAGACCAGCAGAGGCATAAGGTTCGGGAAGAGGTTGTTACCGTGGGCAACTCTGTC
AACGAAGGCTTGAACCAACCTACGGATGACTCGTGCTTTGACCCCTACACAGTTTCCCATT
ATGCCGTTGGAGATGAGTGGGAACGAATGTCTGAATCAGGCTTTAAACTGTTGTGCCAGTG
CTTANGCTTTGGAAGTGGTCATTTCAGATGTGATTCATCTAGATGGTGCCATGACAATGGT
GTGAACTACAAGATTGGAGAGAAGTCGGACCGTCAGGGAGAAAATGGACCTGCCCGGGC
GGCCGCTCGA
```

16451.2.edit

```
TCGAGCGGCCGCCCGGGCAGGTCCATTTTCTCCCTGACGGTCCCACTTCTCTCCAATCTTGT
AGTTCACACCATTGTCATGGCACCATCTAGATGAATCACATCTGAAATGACCACTTCCAAA
GCCTAAGCACTGGCACAACAGTTTAAAGCCTGATTCAGACATTCGTTCCCACTCATCTCCA
ACGGCATAATGGGAAACTGTGTAGGGGTCAAAGCACGAGTCATCCGTAGGTTGGTTCAAG
CCTTCGNTGACAGAGTTGCCCACGGTAACAACCTCTTCCCGAACCTTATGCCTCTGCTGGT
CTTTCAGTGCCTCCACTATGATGTTGTAGGTGGTACCTCTGGTGAGGACCTCGGCCGCGAC
CACGCT
```

16452.1.edit

```
AGCGTGGCCGCGGCCGACGTCCATTCCCTGGAACGGCATCAACTTGGAAGCCAGTGATCG
TCTCAGCCTTGGTTCTCCAGCTAATGGTGATGGNCGTCTCAGTAGCATCTGTCACACGACC
CCTTCTTGGTCGGCTGACATTCTCCAGACTGGTGACAACACCCTGAGCTGGTCTGCTTGTC
AAAGTGTCCTTAAGAICATACACACTCACTTCATATTTGGCGNCCACCATAAGTCCTGATA
CAACCACGGAATGACCTCTCAGGAAC
```

16452.2.edit

```
TCGAGCGGCCGCCCGCGCACGTCCTCAGACCGGGTTCTGAGTACACAGTCAGTGTGGTTGC
CTTGCACGATGATATGGAGAGCCAGCCCCTGATTGGAACCCAGTCCACAGCTATTCCTGCA
CCAACTGACCTGAAGTTCACTCAGGTCACACCCACAAGCCTGAGCGCCCAGTGGACACCA
CCCAATGTTCAGCTCACTGGATATCGAGTGCGGGTGACCCCCAAGGAGAAGACCGGACCA
ATGAAAGAAATCAACCTTGCTCCTGACAGCTCATCCGTCGTTGTATCAGGACTTATGGCGG
CCACCAAATATGAAGTGACTGTCTATGCTCTTAAGGACACTTTGACAAGCAGACCAGCTCA
GGGTGTTGTCACCACTCTGGACAATCTCAGCCCACCAAGAAGGGCTCGTGTGACAGATGC
TACTGAGACCACCATCACCATTAGCTGGACAACCAAGACTGAGACGATCACTGGCTTCCA
AGTTGATGCCGTTCCACCCAATGGACCTCGGCCGCGCCACCACGCTT
```

FIG. 15Y

16453.1.edit

AGCGTGGTCGCGGCCGAGGTCTGGCCGAACTGCCAGTGTACAGGGAAGATGTACATGTTA
TAGNTCTTCTCGAAGTCCCGGGCCAGCAGCTCCACGGGGTGGTCTCCTGCCTCCAGGCGCT
TCTCATTCTCATGGATCTTCTTCACCCGCAGCTTCTGCTTCTCAGTCAGAAGGTTGTTGTCC
TCATCCCTCTCATACAGGGTGACCAGGACGTTCTTGAGCCAGTCCCGCATGCGCAGGGGGA
ATTCGGTCAGCTCAGAGTCCAGGCAAGGGGGGATGTATTTGCAAGGCCCGATGTAGTCCA
AGTGGAGCTTGTGGCCCTTCTTGGTGCCCTCCAAGGTGCACTTTGTGGCAAAGAAGTGGCA
GGAAGAGTCGAAGGTCTTGTTGTCATTGCTGCACACCTTCTCAAACTCGCCAATGGGGGCT
GGGCAGACCTGCCCGGGCGGCCGCTCGA

16453.2.edit

TCGAGCGGCCGCCCGGGCAGGTCTGCCCAGCCCCCATTGGCGAGTTTGAGAAGGNGTGCA
GCAATGACAACAAGACCTTCGACTCTTCCTGCCACTTCTTTGCCACAAAGTGCACCCTGGA
GGGCACCAAGAAGGGGCCACAAGCTCCACCTGGACTACATCGGGCCTTGCAAATACATCCC
CCCTTGCCTGGACTCTGAGCTGACCGAATTCCCCCTGCGCCATGCGGGACTGGCTCAAGAAC
GTCCTGGTCACCCTGTATGAGAGGGATGAGGACAACAACCTTCTGACTGAGAAGCANAAG
CTGCGGGTGAAGAANATCCATGAGAATGANAAGCGCCTGNAGGCCANGAGACCACCCCGT
GGAGCTGCTGGCCCGGGACTTCGAGAACAACTATAACATGTACATCTTCCCTGTACACTGG
CAGTTCGGCCAGACCTCGGCCGCGACCACGCT

16454.1.edit

AGCGTGGNTGCGGACGACGCCCACAAAGCCATTGTATGTACTTTTANTTCAGCTGCAAAN
AATACCNCCAGCATCCACCTTACTAACCAGCATATGCAGACA

16454.2.edit

TCGAGCGGTCGCCCGGGCAGGTTTGGCCGGATAGCACCGGGCATATTTTGGAATGGATGA
GGTCTGGCACCCTGAGCAGCCCAGCGACGACTTGGTCTTAGTTGAGCAATTTGGCTAGGA
GGATAGTATGCAGCACGGTTCTCACTCTCTCGGATAGCTGCCATGAAGNAACCTGAAGGA
GGCGCTGGCTGGTANGCGTTGATTACAGCGCCTGGGAACAGCTCGTACACTTGCCATTCTCT
GCATATACTGGNTAGTGAGCCGAGCCTGCCGCTCTTCTTTGCGCTGAGCTAAAGCTACATA
CAATGGCTTTGNCGGACCTCGGCCGCGACCACGCTT

FIG. 15Z

16455.1.edit

```
TCGAGCGGCCGCCCGGGCAGGTCCATTTTCTCCCTGACGGTCCCACTTCTCTCCAATCTTGT
AGTTCACACEATTGTCATGACACCATCTAGATGAATCACATCTGAAATGACCACTTCCAAA
GCCTAAGCACTGGCACAACAGTTTAAAGCCTGATTCAGACATTCGTTCCCACTCATCTCCA
ACGGCATAATGGGAAACTGTGTAGGGGTCAAAGCACGAGTCATCCGTAGGTTGGTTCAAG
CCTTCGTTGACAGAAGTTGCCCACGGTAACAACCTCTTCCCGAACCTTATGCCTCTGCTGGT
CTTTCAAGTGCCTCCACTATGATGTTGTAGGTGGCACCTCTGGTGAGGACCTCGGCCGCGA
CCACGCT
```

16455.2.edit

```
AGCGTGGTTTGCGGCCGAGGTCCTCACCANAGGTGCCACCTACAACATCATAGTGGAGGC
ACTGAAAGACCAGCAGAGGCATAAGGTTCGGGAAGAGGTTGTTACCGTGGGCAACTCTGT
CAACGAAGGCTTGAACCAACCTACGGATGACTCGTGCTTTGACCCCTACACAGNTTCCCAT
TATGCCGTTGGAGATGAGTGGGAACGAATGTCTGAATCAGGCTTTAAACTGTTGTGCCAGT
GCTTANGCTTTGGAAGTGGTCATTTCAGATGTGATTCATCTANATGGTGTCATGACAATGG
TGNCAACTACAAGATTGGAGACAAGTGGNACCGTCAGGGGANAAAATGGACCTGCCCGG
GCGGCNCGCTCGA
```

16456.1.edit

```
AGCGTGGTCGCGGCCCGAGGTCTGGCTTNCTGCTCANGTGATTATCCTGAACCATCCAGGCC
AAATAAGCGCCCGCTATGCCCCTGNATTGGATTGCCACACGGCTCACATTGCATGCAAGTT
TGCTGACCTGAAGGAAAAACATTGATC
```

16456.2.edit

```
TCGAGCGCCCGCCCGGGCAGGTCCAATTGAAACAAACAGTTCTGACACCGTTCTTCCACCA
CTGATTAAGAGTGCCCNGGCGGGTATTAGGGATAATATTCATTTAGCCTTCTGAGCTTTCT
GGGCAGACTTCGTGACCTTGCCACCTCCAGCACCCTTCTGGTCCACTGCTTTGATGACACC
CACCGCAACTGTCTGTCTCATATCACGAACAGCAAAGCGACCCAAAGGTGGATAGTCTGA
GAAGCTCTCAACACACATGCGGCTTGCCCAGGAACCATATCAACAATGGGCAGCATCACCAG
ACTTCAAGAATTTAAGGGCCATCTTCCAGCTTTTTACCAGAACGGCGATCAATCTTTTCCTT
CAGCTCAGCAAACTTGCATGCAATGTGAGCCG
```

FIG. 15AA

16459.1.edit

```
TCGAGCGGCCGCCCGGGCAGGTCCAGACGGGCTGTGCTGAAGTTTGCTGCTGCCACTGGAG
CCACTCCAATTGCTGGCCGCTTCACTCCTGGAACCTTCACTAACCAGATCCAGGCAGCCTT
CCGGGAGCCACGGCTTCTTGTGGNTACTGACCCCAGGGCTGACCACCAGCCTCTCACGGAG
GCATCTTATGTTAACCTACCTACCATTGCGCTGTGTAACACAGATTCTCCTCTGCGCTATGT
GGACATTGCCATCCCATGCAACAACAAGGGAGCTCACTCAGNGGGGTTTGATGTGGTGGA
TGCTGGCTCGGGAAGTTCTGCGCATGCGTGGCACCATTTCCCGTGAACACCCATGGGANGN
CATGCCTGATCTGGACTTCTACAGAGATCCTGAAGAGATTGAAAAAGAAGAACAGGCTGN
TTGCTGANAAAGCAAGTGACCAAGGANGAAATTTCANGGGTGAAANGGACTGCTCCCGCT
CCTGAATTCACTGCTACTCAACCTGANGNTGCAGACTGGTCTTGAAGGNGNACANGGGCC
CTCTGGGCCTATTTAAGCANCTTCGGTCGCGAACACGNT
```

16459.2.edit

```
AGCGTGNGTCGCGGCCGAGGTGCTGAATAGGCACAGAGGGCACCTGTACACCTTCAGACC
AGTCTGCAACCTCAGGCTGAGTAGCAGTGAACTCAGGAGCGGGAGCAGTCCATTCACCCT
GAAATTCCTCCTTGGNCACTGCCTTCTCAGCAGCAGCCTGCTCTTCTTTTTCAATCTCTTCA
GGATCTCTGTAGAAGTACAGATCAGGCATGACCTCCCATGGGTGTTCACGGGAAATGGTG
CCACGCATGCGCAGAACTTCCCGAGCCAGCATCCACCACATCAAACCCACTGAGTGAGCT
CCCTTGTTGTTGCATGGGATGGGCAATGTCCACATAGCGCAGAGGAGAATCTGTGTTACAC
AGCGCAATGGTAGGTAGCTTAACATAAGATGCCTCCGCGACAAGCTGGTGGTCACCCCTG
GGGTCAAGTAACCACAACAACCCGTGGCTCCCGGAAGGCTGCCTGGATCTGGTTAGTGAA
GGNTCCAGGAGTGAAGCGCCCAACAATTCGACTGGCTTCAGTGGCAAGCAGCAAACTTCA
GCACAAGCCCTCTGGACCTGCCCGCCGCCCGCTCGA
```

16460.1.edit

```
TCGAGCGGCCGCCCGGGCAGGTCCATTTTCTCCCTGACGGNCCCACTTCTCTCCAATCTTGT
AGTTCACACCATTGTCATGGCACCATCTAGATGAATCACATCTGAAATGACCACTTCCAAA
GCCTAAGCACTGGCACAACACTTTAAAGCCTCATTCAGACATTCGTTCCCACTCATCTCCA
ACGGCATAATGGGAAACTGTGTACCCGTCAAACCACGAGTCATCCGTAGGTTCGTTCAAG
CCTTCGTTGACAGACTTCCCCACGGTAACAACCTCNTCCCCGAACCTTATGCCTCTGCTGG
GCTTTCAGNCCCTCCACTATGATGNTGTACGGGGCCACCTCTGGNGANGACCTCGGCCGC
GACCACGCT
```

16460.2.edit

```
AGCGTGGTCGCGGCCGAGGTCCTCACCAGAGGTCCCACCTACAACATCATAGTGGAGGCA
CTGAAAGACCACCAGACGCATAAGGCTCGGGAAGACGTTGTTACCGTGGGCAACTCTGTC
AACGAAGGCTTGAACCAACCTACGGATCACTCGTGCTTTGACCCCTACACAGTTTCCCATT
ATGCCGTTGGAGATGACTGGGAACGAATGTCTCAATCAGGCTTTAAACTGTTGTGCCACTG
CTTANGCTTTGGAAGTGGCTCATTTCACATGTGATTCATCTAGATGGTGCCCATGACAATGG
NGNGAACTACAAGATTGGAGAGAAGTCGNACCGNCAGCGACAAAATGGACCTGCCCGGG
CGGCCGCTCGA
```

FIG. 15BB

16461.1.edit

```
AGCGTGGTCGCGGCCGAGGTCCACATCGGCAGGGTCGGAGCCCTGGCCGCCATACTCGAA
CTGGAATCCATCGGTCATGCTCTCGCCGAACCAGACATGCCTCTTGTCCTTGGGGTTCTTGC
TGATGTACCAGTTCTTCTGGGCCACACTGGGCTGAGTGGGGTACACGCAGGTCTCACCAGT
CTCCATGTTGCAGAAGACTTTGATGGCATCCAGGNTGCAACCTTGGTTGGGGTCAATCCAG
TACTCTCCACTCTTCCAGCCAGAGTGGCACATCTTGAGGTCACGGCAGGTGCGGNCGGGGG
NTTTTGCGGCTGCCCTCTGGNCTTCGGNTGTNCTCNATCTGCTGGCTCA
```

16461.2.edit

```
TCGAGCGGCCGCCCGGGCAGGTCTCGCGGTCGCACTGGTGATGCTGGTCCTGTTGGTCCCC
CCGGCCCTCCTGGACCTCCTGGCCCCCCTGGTCCTCCCAGCGCTGGTTTCGACTTCAGCTTC
CTGCCCCAGCCACCTCAAGAGAAGGCTCACGATGGTGGCCGCTACTACCGGGCTGATGAT
GCCAATGTGGTTCGTGACCGTGACCTCGAGGTGGACACCACCCTCAAGAGCCTGAGCCAG
CAGATCGAGAACATCCGGAGCCCAGAGGCCAGNCGCAAGAACCCCGCCCGCACCTGCCGT
GACCTCAAGATGTGCCACTCTGACTGGAAGAGTGGAGAGTACTGGATTGACCCCAACCAA
GCTGCAACCTGGATGCCATCAAAGTCTTCTGCAACATGGAGACTGGTGAGACCTGCGTGTA
CCCCACTCAGCCCAGTGTGCCCCAAAAGAACTGGTACATCAGCAAGAACCCCAAGGACAA
GAAGCATGTCTGGTTCGGCGAGAACATGACCGATGGATTCCAGTTCGAGTATGGCGGGCA
GGGCTCCGACCCTGCCGATGGGGACCTTGGCCGCGAACACGCT
```

16463.1.edit

```
ACCCTGGNNGCGGCCGAGGTATAAATATCCAGNCCATATCCTCCCTCCACACGCTGANAG
ATGAAGCTGTNCAAAGATCTCAGGGTGGANAAAACCAT
```

16463.2.edit

```
TCGAGCGGCCGCCCGGGCAGGTCCTTCAGACTTCGACTGTGTCACACTGCCAGGCTTCCAG
GGCTCCAACTTGCAGACGGCCTGTTGTCGGACAGTCTCTGTAATCGCGAAAGCAACCATG
GAAGACCTGGGGGAAAAACACCATGGTTTTATCCACCCTGAGATCTTTGAACAACTTCATCT
CTCAGCGTGCGGAGGGAGGCTCTGGACTGGCATATTTCTACCTCGGCCGCGACCACGCT
```

FIG. 15CC

16464.1.edit

CGAGCGGGCGACCGGGCAGGTNCAGACTCCAATCCANANAACCATCAAGCCAGATGTCAG
AAGCTACACCATCACAGGTTTACAACCAGGCACTGACTACAAGANCTACCTGCACACCTTG
AATGACAATGCTCGGAGCTCCCCTGTGGTCATCGACGCCTCCACTGCCATTGATGCACCAT
CCAACCTGCGTTTCCTGGCCACCACACCCAATTCCTTGCTGGTATCATGGCAGCCGCCACG
TGCCAGGATTACCGGTACATCATCNAGTATGANAAGCCTGGGCCTCCTCCCAGAGAAGNG
GTCCCTCGGCCCCGCCCTGNTGTCCCANAGGNTACTATTACTGNGCCNGCAACCGGCAACC
GATATCNATTTTTGNCATTGGCCTTCAACAATAATTA

16464.2.edit

AGCGTGGTTCGCGGCCGANGTCCTGTCAGAGTGGCACTGGTAGAAGTTCCAGGAACCCTG
AACTGTAAGGGGTTCTTCATCAGNGCCAACAGGATGACATGAAATGATGTACTCAGAAGTG
TCCTGGAATGGGCGCCCATGAGATGGTTGTCTGAGAGAGAGCTTCTTGNCCTGTCTTTTTCC
TTCCAATCAGGGGCTCGCTCTTCTGATTATTGTTCAGGGCAATGACATAAATTGTATATTCG
GGTCCCGGNTCCAGGCCAGTAATAGTANCCTCTGTGACACCAGGGCGGNGCCGAGGGACC
ACTTCTCTGGGAGGAGACCCAGGCTTCTCATACTTGATGATGTAACCGGTAATCCTGGCAC
GTGGCGGCTGCCATGATACCAGCAAGCAATTGGGGTGTGGTGGCCAGGAAACGCAGGTTG
GATGGNGCATCAATGGCAGTGGAGGCCGTCGATGACCACAGGGGGGAGCTCCGACATTGTC
ATTCAAGGTG

16465.1.edit

AGCGTGGNCGCGGCCCGAGGTGCAGCGCGCGGCTGTGCCACCTTCTGCTCTCTGCCCAACGAT
AAGGAGGGTNCCTGCCCCCAGCAGAACATTAACTNTCCCCAGCTCGGCCTCTGCCGG

16465.2.edit

TCGAGCGGCCGCCCGGGCAGGTTTTTTGGTGAAAGTGGNTACTTTATTGGNTCGGAAAG
GGAGAAGCTGTGGTCAGCCCAAGACGGAATACAGAGNCCCGAAAAAGGGGCAGGGCCAGGT
GGGCTGGAACCAGACGCAGGGCCAGGCAGAAACTTTCTCTCCTCACTGCTCAGCCTGCTG
GTGGCTGCAGCTCANAAATTGGGAGTGACACAGGACACCTTCCCACAGCCATTGCGCCGG
CATTTCATCTGGCCAGGACACTCGCCTGTCCACCTGGCACTGGTCCGGACAGAAGCCCGAGC
TGGGGAAAGTTAATGTTCACTTGGGGGCAGGAACCCTCCTTATCATTGNGCAGAGAGCAG
AAGGTGGCACAGCCCGCGCTGCACCTCGGCCGGCCACCACGCT

16466.2.edit

TCGAGCCGCCGCCCGGGCAGGTCCACCATAAGTCCTGATACAACCACGGATGAGCTGTCA
GCAGCAAGGCTTGATTTCTTTCATTGGTCCGGNCTTCTCCTTGGGGGNCACCCGCACTCGAT
ATCCAGTGAGCTGAACATTGGCTGGCGTCCACTGGGCGGCTCAGCCT

16467.2.edit

TCGAGCGGTTCGCCCGCGCAGGTCCACCACACCCAATTCCTTGCTGGTATCATGGCAGCCG
CCACGTGCCAGGATTACCGGCTACATCATCAAGTATGAGAAGCCTGGCTCTCCTCCCAGAG
AAGCCGTCCCTCGGCCCCGCCCTGGTGTCACAGAGGCTACTATTACTGGCCTGGAACCGGG
AACCGAATATACAATTTATGTCATTGNCCTGAAGAATAATCANNAANAGCGANCCCCTCA
TTGGAAGGA

FIG. 15DD

01_16469.edit

AGCGTGGTCGCGGCCGAGGTTGTACAAGCTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTT
TTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTT

02_16469.edit

TCGAGCGGNCGCCCGGGCACGTCTGCCAACACCAAGATTGGCCCCCGCCGCATCCACACA
GTCCGTGTGCGGGGAGGTAACAAGAAATACCGTGCCCTGAGGTTGGACGTGGGGAATTTC
TCCTGGGGCTCAGAGTGTTGTACTCGTAAAACAAGGATCATCGATGTTGTCTACAATGCAT
CTAATAACGAGCTGGTTCGTACCAAGACCCTGGTGAAGAATTGCATCGTGCTCATCGACAG
CACACCGTACCGACAGTGGTACGAGTCCCACTATGCGCTGCCCCTGGGCCGCAAGAAGGG
AGCCAAGCTGACTCCTGAGGAAGAAGAGATTTTAAACAAAAAACGATCTAANAAAAAAA
AAACAAT

03_16470.edit

AGCGTGGTCGCGGCCGAGGTGAAATGCTATTCAGCTTCCTGGCACTTCTGGTCAGCAACCC
AGTGTTGGGCAACAAATGATCTTTCAGCAACATGGTTTTAGGCGGACCACACCGCCCACA
ACGGCCACCCCCATAACGCATAGCCCAAGACCATACCCGCCGAATGTAGGACAAGAAGCT
CTCTCTCAGACAACCATCTCATCCGCCCCATTCCAGGACACTTCTGAGTACATCATTTCATG
TCATCCTGTTGGCACTGATGAAGAACCCTTACACTTCAGGGTTCCTGGAACTTCTACCAGT
GCCACTCTGACAGGACCTGCCCCGGGCGGCCGCTCGA

04_16470.edit

TCGAGCGGCCGCCCGGGCAGGTCCTCTCAGAGTGCCACTGGTAGAAGTTCCAGGAACCCT
GAACTGTAAGCGGTTCTTCATCAGTGCCAACAGGATGACATGAAATGATGTACTCAGAAGT
GTCCTGGAATGGGGCCCATGACGATGCTTGTCTCGAGAGAGAGCTTCTTGTCCTACATTCGGC
GGGTATGGTCTTGGCCTATGCCTTATGCCCGGTGCCCGTTGTGGGCCGGTGTGGTCCGCCTAA
AACCATGTTCCTCAAAAGATCATTTGTTGCCCAACACTGCCTTGCTGACCAGAAGTGCCAGG
AAGCTGAATACCATTTCACCTCGGCCCCCGACCACCCTA

05_16471.edit

TCGAGCGGCCGCCCGGGCAGGTCTCCCTTCTTGCGGCCCAGGGGCACCGCATAGTCGGAC
TCGTACCACTGTCGCTACGGTGTGCTGTCGATGAGCACGATGCAATTCTTCACCAGGGTCT
TGGTACGAACCAGCTCGTTATTAGATGCATTGTAGACAACATCGATGATCCTTGTTTTACG
AGTACAACACTCTGAGCCCCAGGAGAAATTCCCCACGTCCAACCTCAGGGCACGGTATTTC
TTGTTACCTCCCCGCACACGGACTGTGTGGATGCGCGCGGCGGCCAAGCTGACTCCTGAGGA
AGAAGAGATTTTAAACAAAAAACGATCTAAAAAAATTCAGAAGAAATATGATGAAAGGA
AAAAGAATGCCAAAATCAGCCAGTCTCCTGGAGGAGCACTTCCAGCAGGGCAAGCTTCTTG
CGTGCATCGCTTCAAGGCCGGGACAGTGTGACCGAGCAGATGGCTATGTGCTAGAGGGCA
AAGAAGTGCAGTTCTATCTTAAGAAAATCAGGCCCCAGAATGGTGNCTCTTCAACTAATC
CAAAGGGGACTTTCAGACCAGTGCAATCAGCAAAAACATTGATACTGNTGGCCAAATTTA
TTGGTGCAGGGCTTGCACANTANGANNGGCTGGGTCTTGCGGGCTTGGATTGGNACAAGCT
CCCCTTAACCGATTCCACNCCNGGNGGCCGTTCTANGGNCCCNCTTG

FIG. 15EE

06_16471.edit

AGCGTGGTCGCGGCCGAGGTCTGCTGCTTCAGCGAAGGGTTTCTGGCATAACCAATGATA
AGGCTGCCAAAGACTGTTCCAATACCAGCACCAGAACCAGCCACTCCTACTGTTGCAGCAC
CTGCACCAATAAATTTGGCAGCAGTATCAATGTCTCTGCTGATTGCACTGGTCTGAAACTC
CCTTTGGATTAGCTGAGACACACCATTCTGGGCCCTGATTTTCCTAAGATAGAACTCCAAC
TCTTTGCCCTCTAGCACATAGCCATCTGCTCGGTCACACTGTCCCGGCCTTGAAGCGATGC
ACGCAAGAAGCTTGCCCTGCTGGAACTGCTCCTCCAGGAGACTGCTGATTTTGGCATTCTT
TTTCCTTTCATCATATTTCTTCTGAATTTTTTTAGATCGTTTTTTGTTTAAAATCTCTTCTTCC
TCAGGAGTCAGCTTGGCCCCCGCCGCATCCACACAGTCCGTGTGCCGGGGAGGTAACAAGA
AATACCGTGCCCTGAGGTTGGACGTGGGGAATTTCTCCTGGGGCTCAGAGTGGTGTACTCG
TAAAACAAGGATCATCGATGGTGNCTACAATGCATCTAATAACGAGCTGGGTCGGACCCA
AAGAACCTGGNGAANAAATGGATCGNCTCATCGACAGGACACCGTACCCGACAGGGGNA
CGANTCCCACTATGCGCTTGCCCCTGGGCCGCAANAAAGGAAAACTGCCCGGGCGGCCNT
CGAAAGCCCAATTNTGGAAAAAATCCATCACACTGGGNGGCCNGTCGAGCATGCATNTAN
AGGGGCCCATTCCCCCTNANN

07_16472.edit

TCGAGCGGCCGCCCGGGCAGGTCCCCAACCAAGGCTGCAACCTGGATGCCATCAAAGTCT
TCTGCAACATGGAGACTGGTGAGACCTGCGTGTACCCCACTCAGCCCAGTGTGGCCCAGA
AGAACTGGTACATCAGCAAGAACCCCAAGGACAAGAGGCATGTCTGGTTCGGCGACAGCA
TGACCGATGGATTCCAGTTCGAGTATCGCGGCCAGGGCTCCGACCCTGCCGATGTGGACCT
CGGCCGCGACCACGCT

08_16472.edit

AGCGTGGTCGCGGCCGAGGTCCACATCGGCACGGTCGGAGCCCTCGCCGCCATACTCGAA
CTGGAATCCATCGGTCATGCTCTCGCCGAACCAGACATGCCTCTTGTCCTTGGGGTTCTTGC
TGATGTACCAGTTCTTCTGGGCCACACTGGCCTGAGTGGGGTACACGCAGGTCTCACCAGT
CTCCATGTTGCAGAAGACTTTGATGGCATCCACGTTGCAGCCTTGGTTGGGGACCTGCCCG
GGCGGCCGCTCGA

09_16473.edit

TCGAGCCGCCGCCCGGGCACGTCCACCACACCCAATTCCTTGCTGGTATCATGGCAGCCGC
CACGTGCCAGGATTACCGGCTACATCATCAAGTATGAGAAGCCTGCGGTCTCCTCCCAGAGA
AGTGGTCCCTCGGCCCCGCCCTGGTGTCACACAGGCTACTATTACTGGCCTGCAACCGGGA
ACCGAATATACAATTTATGTCATTGCCCTCAAGAATAATCAGAAGACGGAGCCCCCTGATTG
GAAGGAAAAGACAGACGAGCTTCCCCAACTGGTAACCCTTCCACACCCCAATCTTCATG
GACCAGAGATCTTGGATGTTCCTTCCACAGTTCAAAAGACCCCTTTCGTCACCCACCCTGG
GTATGACACTGGAAATGGTATTCAGCTTCCTGGCACTTCTGGTCAGCAACCCAGTGTTGGG
CAACAAATGATCTTTGAGGAACATGGNTTTAGGCGGACCACACCGCCCACAACGGCCACC
CCCATAAGGCATAGGCCAAGACCATACCCGCCGAATGTAGGACAAGAAGCTNTNTNTCAN
ACACCATNTNATGGCCCCATTCCACCACACTTCTGAGTACATCATTTATGNCATCTGTGG
CACTTGATGAAAACCCTTACACTTCAGGCTTCTGGAACTTTTACCAGGCCTNTTACAGGAC
TNGCCCGGACNCCTTAAGCCNATTNCACCCTGGGGCGTTCTANGGTCCCACTCGNNCACTG
GNGAAAATGGCTACTGTN

FIG. 15FF

11_16474.edit

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AGCGTGGTCGCGGCCGAGGTCCACTAGAGGTCTGTGTGCCATTGCCCAGGCAGAGTCTCTG
CGTTACAAACTCCTAGGAGGGCTTGCTGTGCGGAGGGCCTGCTATGGTGTGCTGCGGTTCA
TCATGGAGAGTGGGGGCCAAAGGCTGCGAGGTTGTGGTGTCTGNGAAACTCCNAGGACANG
AGGGCTAAATTCCATGAAGTTTGTGGATGGCCTGATGATCCACAATCGGAGACCCTGTTAA
CTACTACCGTCTNACCNCCTGCTGTNCNCCCCCNTTTCTGCTNAANACATNGGGNTNNTNC
TTGNCCNTCCTTGGGTNGAAANATNNAATNGCCTNCCCNTTCNTANCNCTACTNGNTCCANA
NTTGGCCTTTAAANAATCCNCCTTGCCTTNNNCACTGTTCANNTNTTTNNTCGTAAACCCT
ATNANTTNNATTANATNNTNNNNNNCTCACCCCCCTCNTCATTNANCCNATANGCTNNNA
ANTCCTTNANNCCTCCCNCCCNNTNCNCTCNTACTNANTNCTTCTNNCCCATTACNNAGCT
CTTTCNTTTAAANATAATGNNGCCNNGCTCTNCATNTCTACNATNTGNNNAATNCCCCCNCC
CCCNANCGNNTTTTTGACCTNNNAACCTCCTTTCCTCTTCCCTNCNNAAATTNCNNANTTCC
NCNTTCCNNCNTTTCGGNTNNTCCCATNCTTTCCANNNCTTCANTCTANCNCNCTNCAACT
TATTTTCCTNTCATCCCTTNTTCTTTACANNCCCCCTNNTCTACTCNNCNNTTNCATTANAT
TTGAAACTNCCACNNCTANTTNCCTCNCTCTACNNTTTTATTTTNCGNTCNCTCTACNTAAT
ANTTTAATNANTTNTCN
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12_16474.edit

```
TCGAGCGGCCGCCCGCCCAGCTCTGCCAAGGAGACCCTGTTATGCTGTGGGGACTGGCTG
GGGCATGGCACCCGGCTCTGGCTTCCCACCCTTCTGTTCTGAGATGGGGGTGGTGGGCAGT
ATCTCATCTTTGGGTTCCACAATGCTCACGTGGTCAGGCAGGGGCTTCTTAGGGCCAATCT
TACCAGTTGGGTCCCAGGCCAGCCATCATCTTCACCTTGATGCCCAGCACACCCTGTCTGAG
CAACACGTGCCGCACAAGCCAGTGTCAACGTAGTAAGTTAACAGGGTCTCCGCTGTGGATC
ATCACGGCCATCCACAAACTTCATGCATTTAGCCCTCTGTCCTCGGAGTTTCCCAGACACCA
CAACCTCGCAGCCTTTCGGCCCCACTCTCCATGATGAACCGCAGCACACCATAGCAGGCCCT
CCGCACAAGCAAGCCCTCCTAAAGAATTTCTAACGCANANACTCTGCTGGCAATGGCACAC
AAACCTCTAGTGGACCTCGGNCGCGACTACGC
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13_16475.edit

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TCGAGCGGCCGCCCGGGCCAGCTCTGGTCTAGGATACCCTGCGAGTCCTCCTACTGCTACTC
CACGACTTGACATCATATGAATCATACTGGGGAGAAATAGTTCTGAGGACCAGTAGGGCATG
ATTCACAGATTCCAGGCGGCCCAGGACAACCAGGGGACCCTGGTTGTCCTGGAATACCAG
GGTCACCATTTCTCCCAGGAATACCAGGAGCCCCTGGATCTCCCTTGGGGCCTTCGACGTCC
TTGACCATTACGAGGGCGAGTAGGAGCACTTGGAGGCTGTGGGCAAACTGCACAACATTC
TCCAAATGGAATTTCTGCGTTCGGGCAGTCTAATTCTTGATCCGTCACATATTTATGTCATCG
CAGAGAACGGATCCTGAGTCACAGACACATATTTCGGCATGGTTCTGGCTTCCAGACATCTC
TATCCGNCATAGGACTGACCAAGATGGGAACATCCTCCTTCAACAAGCTTNCTGTTCTGCC
AAAAATAATAGTGGGATGAAGCAGACCGACAAGTANCCAGCTCCCCTTTTGCACAAAGC
NTCATCATGTCTAAATATCAGACATGACACTTCTTTGGGCAAAAAAGGAGAAAAAGAAAA
AGCAGTTCAAAGTANCCNCCATCAAGTTGGTTCCTTGCCCNTTCAGCACCCGGGCCCCGTT
ATAAAACACCTNCGGCCGGACCCCCCTT
```

FIG. 15GG

14_16475.edit

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AGCGTGGTCCCGGCCGAGGTGTTTTATGACGGGCCCGGTGCTGAAGGGCAGGGAACAACT
TGATGGTGCTACTTTGAACTGCTTTTCTTTTCTCCTTTTTGCACAAAGAGTCTCATGTCTGA
TATTTAGACATGATGAGCTTTGTGCAAAAGGGGAGCTGGCTACTTCTCGCTCTGCTTCATC
CCACTATTATTTTGGCACAACAGGAAGCTGTTGAAGGAGGATGTTCCCATCTTGGTCAGTC
CTATGCGGATAGAGATGTCTGGAAGCCAGAACCATGCCAAATATGTGTCTGTGACTCAGG
ATCCGTTCTCTGCGATGACATAATATGTGACGATCAAGAATTAGACTGCCCCAACCCAGAA
ATTCCATTTGGAGAATGTTGTGCAGTTTGCCCACAGCCTCCAACTGCTCCTACTCGCCCTCC
TAATGGTCAAGGACCTCAAGGCCCCAAGGGAGATCCAGGCCCTCCTGGTATTCCTGGGAG
AAATGGTGACCCTGGTATTCCAGGACAACCAGGGTCCCTGGTTCTCCTGGCCCCCCTGGA
ATCNGGNGAATCATGCCCTACTGGTCCTCAAACTATTCTCCCANATGATTCATATGATGTC
AAGTCTGGGATAGCNAGTANGGANGGACTCGCAGGCTATTCTGGACCANACCTGCCGGGG
GGGCGTTCGAAAGCCCGAATCTGCANANNTNCNTTCACACTGGCGGCCGTCGAGCTGCTTT
AAAAGGGCCATTCCNCCTTTAGNGNGGGGGANTACAATTACTNGGCGGCGTTTTANANCG
CGNGNCTGGGAAAT
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15_16476.edit

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AGCGTGGTCGCGGCCGAGGTCCACATCCGCAGGGTCGGAGCCCCTGGCCGCCATACTCGAA
CTGGAATCCATCGGTCATGCTCTCGCCCGAACCAGACATGCCTCTTGTCCTTGGGGTTCTTGC
TGATGTACCAGTTCTTCTGGGCCACACTGGGCTGAGTGGGGTACACGCAGGTCTCACCAGT
CTCCATGTTGCAGAAGACTTTGATCGGCATCCACGTTGCAGCCTTGGTTGGGCTCAATCCAG
TACTCTCCACTCTTCCAGTCAGACTGGCACATCTTGACGTCACGGCACGGTGCGGGCGGGGT
TCTTGCGGCTGCCCTCTCGGCTCCGCATGTTCTCGATCTGCTGGCTCAGGCTCTTGAGGGTG
GTGTCCACCTCGAGGTCACGGTCACGAACCACATTGGCATCATCAGCCCGGTAGTAGCGGC
CACCATCGTGAGCCTTCTCTTGANGTGCCTGGCCCAGGAACTGAAGTCGAAACCAGCGCT
GGGAGGACCAGGGGGACCAANAGGTCCAGGAACGGCCCGGGGGGGACCAACAGGACCAG
CATCACCAAGTGCGACCCGCCAGAACCTGCCCGGCCGNCCGCTCGAA
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16_16476.edit

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TCGAGCCGNNCGCCCGGGCACCTCTCGCGGTCGCACTCGTGATGCTGGTCCTGTTGGTCCCC
CCGGCCCTCCTGGACCTCCTGGTCCCCCTGGTCCTCCCAGCCGCTGGTTTCGACTTCAGCTTC
CTGCCCCAGCCACCTCAAGACAAGGCCTCACGATGGTGCCCGCTACTACCGCCCTGATGAT
GCCAATGTGGTTCGTGACCGTGACCTCGAGGTGGACACCACCTCAAGAGCCTGAGCCAG
CAGATCGACAACATCCGGCAGCCCAGACGGCAGCCGCAACAACCCCGCCCGCACCTGCCCGT
GACCTCAAGATGTGCCACTCTGACTGGAAGAGTGGAGACTACTGGATTGACCCCAACCAA
GGCTGCAACCTGCATGCCATCAAAGTCTTCTGCAACATGGAGACTGGTGAGACCTGCGTGT
ACCCCACTCAGCCCAGTGTGCCCCAGAAGAACTGGTACATCAGCAAGAACCCCAAGGCACA
AGAGGCATGTCTCGTTCGGCCGACAGCATGACCGATGGATTCCAGTTCGAGTATGGCGGCCC
AGGGCTCCCACCCTGCCGATGTGCACCTCCCGGCCGCGACCACCCTT
```

FIG. 15HH

17_16477.edit

TNGAGCGGCCGGCCCGGGCAGGNTGNNAACGCTGGTCCTGCTGGTCCTCCTGGCAAGGCTG
GTGAAGATGGTCACCCTGGAAAACCCGGACGACCTGGTGAGAGAGGAGTTGTTGGACCAC
AGGGTGCTCGTGGTTTCCCTGGAAACTCCTGGACTTCCTGGCTTCAAAGGCATTAGGGGACA
CAATGGTCTGGATGGATTGAAGGGACAGCCCGGTGCTCCTGGTGTGAAGGGGTGAACCTGG
TGCCCCTGGTGAAAATGGAACTCCAGGTCAAACAGGAGCCCGTGGGCTTCCTGGTGAGAG
AGGACCGTGTTGGTGCCCCTGGCCCANACCTCGGCCGCGACCACGCTAAGCCCGAATTTCC
AGCACACTGGNGGCCGTTACTANTCGATCCGAGCTCGGTACCAAGCTTGGCGTAATCATG
GTCATAGCTGTTTCCTGNGTGAAATTGTTATCCGCTCACAATTTCACACANCATACGAAGC
CGGAAAGCATAAAGTGTAAAGCCTTGGGGTGCTAATGAGTGAGCTAACTCNCATTAAATT
GCGTTGCGCTCACTGCCCGCTTTTCCANNNGGGAAACCNTGGCNTNGCCNGCTTGCNTTAA
NTGAAATCCGCCNACCCCCGGGGAAAAGNCGGTTTGCNGTATTGGGGCNCTTTTTTCCCTTT
CCTCGGNTTACTTGANTTANTGGGCTTTGGNCGNTTCGGGTTGNGGCGANCNGGTTCAACN
TCACNCCAAAGGNGGNAAANACGGTTTTCCCANAATCCGGGGGNTANCCCAANGNAAAAC
ATNNGNCNAANGGGCT

18_16477.edit

AGCGTGGTTNGCGGCCGACGTCTGCGCCACGGGCACCAACACGTCCTCTCTCACCAGGAA
GCCCACGGGCTCCTGTTTGACCTGGAGTTCCATTTTCACCAGGGGCACCAGGTTCACCCTT
CACACCAGGAGCACCCGGCTGTCCTTCAATCCATNCAGACCATTGTGNCCCCTAATGCCT
TTGAAGCCAGGAAGTCCACGACTTCCAGGGAAACCACCGAGCACCCTGTGGTCCAACAAC
TCCTCTCTCACCAGGTCGTCCGGGTTTTCCACGGTGACCATCTTCACCAGCCTTGCCAGGA
GGACCAGCAGGACCAGCGTTACCAACCTGCCCGGCGGCCGCTCGA

21_16479.edit

TCGAGCGGCCGCCCGGGCAGGTCCATTTTCTCCCTGACGGTCCCACTTCTCTCCAATCTTGT
AGTTCACACCATTGTCATGCCACCATCTAGATGAATCACATCTGAAATGACCACTTCCAAA
GCCTAAGCCACTGGCACAACAGTTAAAGCCTGATTCAGACATTCGTTCCCACTCATCTCCA
ACGGCATAATGGCAAACTGTGTAGGGGTCAAAGCACGAGTCATCCGTAGGTTGGTTCAAG
CCTTCGTTGACAGAGTTGCCCACGGCTAACAACCTCTTCCCGAACCTTATGCCTCTGCTGGTC
TTTCAGTGCCTCCACTATGATGTTGTACGTGGCCACCTCTCGGTGAGGACCTCGGCCGCGACC
ACGCT

22_16479.edit

ACCGTGGTCGCCGGCCGACGTCCTCACCACGAGGTGCCACCTACAACATCATAGTGGAGGCA
CTGAAAGACCAGCAGAGGCATAAAGGTTCGGGAACAGGTTGTTACCGTGGGCAACTCTGTC
AACGAAGGCTTGAACCAACCTACGGATGACTCGTGCTTTGACCCCTACACAGTTTCCCATT
ATGCCGTTGGAGATGACTGGGAACGAATGTCTGAATCAGCCTTTAAACTGTTGTGCCCAGTG
CTTAGGCTTTGGAAGTGGTCATTTCAAGATGTGATTCATCTAGATGGTGCCCATGACAATGG
TGTGAACTACAAGATTGGAGAGAAGTGCCACCGTCAGGGAGAAAATGGACCTGCCCGGG
CCGGCCCCTCGA

FIG. 15II

24_16480.edit

TCGAGCGNNCGCCCGGGCAGGTCCAGTAGTGCCTTCGGGACTGGGTTCACCCCCAGGTCTG
CGGCAGTTGTCACAGCGCCAGCCCCGCTGGCCTCCAAAGCATGTGCAGGAGCAAATGGCA
CCGAGATATTCCTTCTGCCACTGTTCTCCTACGTGGTATGTCTTCCCATCATCGTAACACGT
TGCCTCATGAGGGTCACACTTGAATTCTCCTTTTCCGTTCCCAAGACATGTGCAGCTCATTT
GGCTGGCTCTATAGTTTGGCGAAAGTTTGTTGAAACTGTGCCACTGACCTTTACTTCCTCCT
TCTCTACTGGAGCTTTCGTACCTTCCACTTCTGCTGTTGGTAAAATGGTGGATCTTCTATCA
ATTTCATTGACAGTACCCACTTCTCCCAAACATCCAGGGAAATAGTGATTTCAGAGCGATT
AGGAGAACCAAATTATGGGGCAGAAATAAGGGGCTTTTCCACAGGTTTTCCTTTGGAGGA
AGATTTCAGTGGTGACTTTAAAAGAATACTCAACAGTGTCTTCATCCCCATAGCAAAAGAA
GAAACNGTAAATGATGGAANGCTTCTGGAGATGCCNNCATTTAAGGGACNCCCAGAACTT
CACCATCTACAGGACCTACTTCAGTTTACANNAAGNCACATANTCTGACTCANAAAGGAC
CCAAGTAGCNCCATGGNCAGCACTTTNAGCCTTTCCCCTGGGGAAAANNTTACNTTCTTAA
ANCCTNGGCCNNGACCCCCTTAAGNCCAAATTNTGGAAAANTTCCNTNCNNCTGGGGGGC
NGTTCNACATGCNTTTNAAGGGCCCAATTNCCCCNT

25_16481.edit

TCGAGCGGCCGCCCCGGCCACGTGTCGGAGTCCAGCACGGGAGGCGTGGTCTTGTAGTTGT
TCTCCGGCTGCCCATTGCTCTCCCACTCCACGGCCGATGTCGCTGGGATAGAAGCCTTTGAC
CAGGCAGGTCACGGCTGACCTGCTTCTTGGTCATCTCCTCCCGGGATGGGGGCAGGGTGTAC
ACCTGTGGTTCTCGGGGCTGCCTTTGCCTTTGGACATGGTTTTCTCGATGCGGGCTGCGA
GGGCTTTGTTGGAGACCTTGCACTTGTACTCCTTGCCATTCAGCCAGTCCTGGTGCAGGAC
GGTGAGGACGCTGACCACACGGTACGTGCTGTTGTACTGCTCCTCCCGCGGCTTTGTCTTG
GCATTATGCACCTCCACGGCGTCCACCTACCAGTTGAACTTGACCTCAGGGTCTTCGTGGCC
TCACGTCCACCACCACGGCATGTAACCTCAGACCTCGGCCGGCACCACGCT

26_16481.edit

AGCGTGGTCGCGGCCGAGCTCTGAGGTTACATGCGTGGTGGTGGACGTGAGCCACGAAGA
CCCTGACGGTCAAGTTCAACTCGTACGTGGACGGCGTGGAGGTGCATAATCGCAAGACAAA
GCCGCGGGAGGAGCCAGTACAACAGCACGTACCGTGTGGTCACCGTCCTCACCGTCCTGCA
CCAGGACTGGCTGAATGGCAAGGCAGTACAAGTGCAAGGTCTCCAACAAAGCCCTCCCACC
CCCCATCGAGAAAACCATCTCCAAAGCCAAAGGGCAAGCCCCGAGAACCACACGGTGTACA
CCCTGCCCCCATCCCGGGAGGAGATGACCAAGAACCAGGTCAGCCCTGACCTGCCTGGTCA
AAGCCTTCTATCCCAGCGACATCGCCGTGGAGTGGGAGAGCAATGCGCAGCCGGAGAACA
ACTACAAGACCACGCCTCCCGTGCTGGACTCCGACACCTGCCCGGGCGGCCGCTCGA

27_16482.edit

TCGAGCGGCCGCCCGGGCAGGTTGAATGGCTCCTCGCTGACCACCCCGGTGCTGGTGGTGG
GTACAGAGCTCCGATGGGTGAAACCATTGACATAGAGACTGTCCCTGTCCACGGTGTAGG
GGCCCAGCTCAGTGATGCCGTGGGTCAGCTGGCTCAGCTTCCAGTACAGCCGCTCTCTGTC
CAGTCCAGCGGCTTTTGGGGTCAGCACCATGGGTGCAGACAGCATCCACTCTGGTGGCTGC
CCCATCCTTCTCAGCCCTGACCAAGGCTCAGTCTGCAACCAGAGTACAGAGCACCTGACACT
GGTGTTCTTGAACAAGGGCATAAGCAGACCCTCAACGACACCTCGGCCGCGACCACGCT

FIG. 15JJ

28_16482.edit

AGCGTGGTCGCGGCCGAGGTGTCCTTCAGGGTCTGCTTATGCCCTTGTTCAAGAACACCAG
TGTCAGCTCTCTGTACTCTGGTTGCAGACTGACCTTGCTCAGGCCTGAGAAGGATGGGGCA
GCCACCAGAGTGGATGCTGTCTGCACCCATCGTCCTGACCCCAAAAGCCCTGGACTGGACA
GAGAGCGGCTGTACTGGAAGCTGAGCCAGCTGACCCACGGCATCACTGAGCTGGGCCCCT
ACACCCTGGACAGGGACAGTCTCTATGTCAATGGTTTCACCCATCGGAGCTCTGTACCCAC
CACCAGCACCGGGGTGGTCAGCGACGAGCCATTCAACCTGCCCGGGCGGCCGCTCGA

29_16483.edit

AGCGTGGTCGCGGCCGAGGTCCTGTCAGAGTGGCACTGGTAGAAGTTCCAGGAACCCTGA
ACTGTAAGGGTTCTTCATCAGTGCCAACAGGATGACATGAAATGATGTACTCAGAAGTGTC
CTGGAATGGGGCCCATGAGATGGTTGTCTGAGAGAGAGCTTCTTGTCCTACATTCGGCGGG
TATGGTCTTGGCCTATGCCTTATGGCGGTGGCCGTTGTGGGCGGTGTGGTCCGCCTAAAAC
CATGTTCCTCAAAGATCATTTGTTGCCCAACACTGGGTTGCTGACCAGAAGTGCCAGGAAG
CTGAATACCATTTCCAGTGTCATACCCAGGGTGGGTGACGAAAGGGGTCTTTTGAACTGTG
GAACGAACATCCAAGATCTCTGGTCCATGAAGATTGGGGTGTGGAAGGGTTACCAGTTGG
GGAAGCTCGTCTGTCTTTTTCCTTCCAATCAGGGGCTCGCTCTTCTGATTATTCTTCAGGGC
AATGACATAAATTGTATATTCGGTCCCGGTTCCAGGCCAGTAATAGTAGCCTCTGTGACAC
GNCCGGTAATCCTGGCACCTGGCGCTTGCATGATNCCACCAAGGAAATNGGNGGGGGNG
GACCTGCCCGGCGGCCGTTCNAAAGCCCAATTCCACACACTTGGCNGGCCGTACTATGGATC
CCACTCNGTCCAACTTGGNGGAATATGGCATAACTTTT

31_16484.edit

TCGAGCGGCCGCCGGGCAGGTCCTTGACCTTTTCAGCAAGTGGGAACGTGTAATCCGTCT
CCACAGACAACGCCAGCACTCGTTTGTATCCGTTGATGATAGAATGGGGTACTGATGCAA
CAGTTCGGTAGCCAATCTGCAGACAGACACTGCCAACATTGCGGACACCCTCCAGGAAGC
GAGAATGCAGAGTTTCCTCTGTGATATCAAGCCACTTCAGGGTTGTAGATGCTGCCATTGTC
GAACACCTGCTGGATGACCAGCCCAAAGCACAAGGGCGAGATGTTGAGCATGTTCAGCAG
CGTCGCTTCGCTCGCTCCACTTTGTCTCCACTCTTGATCAGACCTCGCCCCGCGACCACGCT

37_16487.edit

AGCGTGGTCGCGGCCCGAGGTCTGTCTTACAGTCCTCAGGACTCTACTCCCTCAGCAGCGTG
GTGACCGTGCCCTCCAGCAACTTCGGCACCCAGACCTACACCTGCAACGTAGATCACAAGC
CCACCAACACCAAGGTGGACAAGACAGTTGAGCCCAAATCTTGTGACAAAACTCACACAT
GCCCACCGTGCCCAGCACCTGAACTCCTGGGGGACCGTCAGTCTTCCTCTTCCCCCGCAT
CCCCCTTCCAAACCTGCCCGGGCGGCCGCTCG

FIG. 15KK

38_16487.edit

CGAGCGGCCGCCCGGGCACGTTTGGAAGGGGGATGCGGGGGAAGAGGAAGACTGACGGT
CCCCCCAGGAGTTCAGGTGCTGGGCACGGTGGGCATGTGTGAGTTTTGTCACAAGATTTGG
GCTCAACTCTCTTGTCCACCTTGGTGTTGCTGGGCTTGTGATCTACGTTGCAGGTGTAGGTC
TGGGTGCCGAAGTTGCTGGAGGGCACGGTCACCACGCTGCTGAGGGAGTAGAGTCCTGAG
GACTGTAGGACAGACCTCGGCCGCGACCACGCT

39_16488.edit

NGGNNGGTCCGGNCNGNCAGGACCACTCNTCTTCGAAATA

41_16489.edit

AGCGTGGTCGCGGCCGAGGTCCTCACTTGCCTCCTGCAAAGCACCGATAGCTGCGCTCTGG
AAGCGCAGATCTGTTTTAAAGTCCTGAGCAATTTCTCGCACCAGACGCTGGAAGGGAAGTT
TGCGAATCAGAAGTTCAGTGGACTTCTGATAACGTCTAATTTCACGGAGCGCCACAGTACC
AGGACCTGCCCGGGCGGCCGCTCGA

42_16489.edit

TCGAGCGGCCGCCCGGGCAGGTCCTCGTACTGNGCCGCTCCGTGAAATTAGACGTTATCA
GAACTCCACTGAACTTCTGATTCGCAAACTTCCCTTCCAGCGTCTGGTGCGAGAAATTCCT
CAGGACTTTAAAACAGATCTGCGCTTCCAGAGCGCAGCTATCGGTGCTTTGCAGGAGGCA
AGTCAGGACCTCGGCCGCGACCACGCT

45_16491.edit

TCGAGCGGCCGCCCGGGCAGGTCCACATCCGCAGGGTCGGACCCCTGCCCGCCATACTCG
AACTGGAATCCATCCGTCATCCTCTCGCCGAACCAGACATGCCTCTTGTCCTTGGGGTTCT
TGCTGATGTACCAGTTCTTCTGGGCCACACTGGGCTGAGTGCGGGTACACGCAGGTCTCACC
AGTCTCCATGTTGCAGAAGACTTTGATGGCATCCAGGTTGCACCCTTGGTTGGGGTCAATC
CAGTACTCTCCACTCTTCCAGTCAGAGTGGCACATCTTGACGTCACGGCAGGTGCGGGCGG
GGTTCTTGACCTCGGCCGCGACCACGCT

FIG. 15LL

46_16491.edit

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GTGGGNTTGAACCCNTTTNANCTCCGCTTGGTACCGAGCTCGGATCCACTAGTAACGGCCG
CCAGTGTGCTGGAATTCGGCTTAGCGTGGTCGCGGCCGAGGTCAAGAACCCCGCCCGCAC
CTGCCGTGACCTCAAGATGTGCCCACTCTGACTGGAAGAGTGGAGAGTACTGGATTGACCC
CAACCAAGGCTGCAACCTCGATGCCATCAAAGTCTTCTGCAACATGGAGACTGGTGAGAC
CTGCGTGTACCCCACTCAGCCCAGTGTGGCCCAGAAGAACTGGTACATCAGCAAGAACCC
CAAGGACAAGACGCATGTCTGGTTCGGCGAGAGCATGACCGATGGATTCCAGTTCGAGTA
TGGCGGCCAGGGCTCCGACCCTGCCGATGTGGACCTGCCCGGGCGGCCGCTCGA
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47_16492.edit

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AGCGTGGTCGCGGCCGAGGTCTGGGATGCTCCTGCTGTCACAGTGAGATATTACAGGATC
ACTTACGGAGAAACAGGAGGAAATAGCCCTGTCCAGGAGTTCACTGTGCCTGGGAGCAAG
TCTACAGCTACCATCAGCGGCCCTTAAAACCTGGAGTTGATTATACCATCACTGTGTATGCTG
TCACTGGCCGTGGAGACAGCCCCGCAAGCAGCAAGCCAATTTCCATTAATTACCGAACAG
AAATTGACAAACCATCCCAGATGCAAGTGACCGATGTTCAGGACAACAGCATTAGTGTCA
AGTGGCTGCCTTCAAGTTCCCCTGTTACTGGTTACAGAGTAACCACCACTCCCAAAAATGG
ACCAGGACCAACAAAAACTAAAACTGCAGGTCCAGATCAAACAGAAATGACTATTGAAG
GCTTGCAGCCCACAGTGGAGTATGTGGTTAAGTGTCTATGCTCAGAATCCAAGCGGAGAG
AAGTCAGCCTCTGGTTCAGACTGNAAGTAACCAACATTGATCGCCTAAACGACTGGCATTC
ACTGATGNCGATGCCCGATTCCATCAAAATTCNTTGGGAAAACCCACAGGGGCAAGTTTNC
ANGTCNAGGCNGCACCTACTCGACCCCTGAGGATGCAATCCTTGACTNTTCCTTNNCCTGAT
CCACCCCCTTGCGCGCGTTCTATGCCNCUCACTCGGACCAAACTTGGCGTAAN
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48_16492.edit

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TCGAGCGGCCGCCCGGGCAGGTCCTTGCAGCTCTCCAGTGTCTTCTTCACCATCACGTGCA
GGGAATACCTCATCGATTCCATCCTCAGGCTCGACTAGGTCACCCTGTACCTGCAAACTT
GCCCCTGTGGGCTTTCCCAAGCAATTTTGATGGAATCGGCATCCACATCAGTGAATGCCAG
TCCTTAGGGCGATCAATGTTGGTTACTCCAGTCTGAACCACAGCCTGACTCTCTCCGCTT
GGATTCTGACCATAGACACTAACCACATACTCCACTGTGGCCTGCAAGCCCTTCAATAGTCA
TTTCTGTTTGATCTGGACCTGCACTTTTACTTTTGTTGGTCCTGGTCCATTTTTCGGAGTG
GTGGTTACTCTGTAACCAGTAACAGCGGCAACTTGAAGGCAGCCACTTGACACTAATGCTGT
TGTCCTGAACATCCGTCACTTGCATCTCGCCATGCTTTGTCAATTTCTGTTCGGTAATTAATG
GAAATTCGGCTTGCTGCTTGCGCGGGCTTGTCTCCACCGGCCAGTGACAGCCATACACAGTGATG
CTATAATCAACTCCAGGTTTAAGCCCGCTGATGGTAGCTGAAACTTTGCTCCAGCCACAAGT
GAACTCCTGACAGGGCTATTTCCTNCTGTTCTCCGTAAGTGATCCTGTAATATCTCACTGGG
ACAGCAGGANGCATTCCAAAAACTTCGGCCGNGACCCCCTAAGCCGAATTNTGCAATATNC
ATCACACTGCCGCGCGCTCGANCATTCATTAAAAGCCCCAATCNCCCCTATAGGCAGTNT
ANTACAATTNG
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FIG. 15.MM

49_16493.edit

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TCGAGCGGCCGCCCGGGCAGGTCACTTTTGGTTTTTGGTCATGTTCGGTTGGTCAAAGATA
AAAACTAAGTTTGAGAGATGAATGCAAAGGAAAAAAATATTTTCCAAAGTCCATGTGAAA
TTGTCTCCCATTTTTTTGGCTTTTGAGGGGGTTCAGTTTGGGTTGCTTGTCTGTTTCCGGGTT
GGGGGGAAAGTTGGTTCGGTGGGAGGGAGCCAGGTTGGGATGGAGGGAGTTTACAGGAA
GCAGACAGGGCCAACGTCG
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55_16496.edit

```
AGCGTGGTCGCGGCCGAGGTCCTCACCAGAGGTGCCACCTACAACATCATAGTGGAGGCA
CTGAAAGACCAGCAGAGGCATAAGGTTCGGGAAGAGGTTGTTACCGTGGGCAACTCTGTC
AACGAAGGCTTGAACCAACCTACGGATGACTCGTGCTTTGACCCCTACACAGTTTCCCATT
ATGCCGTTGGAGATGAGTGGGAACGAATGTCTGAATCAGGCTTTAAAACTGTTGTGCCAGTG
CTTAGGCTTTGGAAGTGGTCATTTCAGATGTGATTCATCTAGATGGTGCCATGACAATGGT
GTGAACTACAAGATTGGAGAGAAGTGGGACCGTCAGGGAGAAAATGGACCTGCCCGGGC
GGCCGCTCGA
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56_16496.edit

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TCGAGCGGCCGCCCGGGCAGGTCCATTTTCTCCCTGACGGTCCCACTTCTCTCCAATCTTGT
AGTTCACACCATTGTCATGGCACCATCTAGATGAATCACATCTGAAATGACCACTTCCAAA
GCCTAAGCACTGGCACAACAGTTTAAAACCCTGATTCAGACATTCGTTCCCACTCATCTCCA
ACGGCATAATGGGAAACTGTGTACGGCGTCAAAGCACGAGTCATCCGTAGGTTGCTTCAAG
CCTTCGTTGACAGAGTTGCCCACTGTAACAAACCTCTTCCCGAACCTTATGCCTCTGCTGGTC
TTTCAGTGCCTCCACTATGATGTTGTAGGTCGCACCTCTGGTGAGGACCTCGGCCGCGACC
ACGCT
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59_16498.edit

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TCGAGCGGCCGCCCGGGCAGGTCCACCATAAGTCCTGATACAACCACGGATGAGCTGTCA
GGAGCAAGGTTGATTTCTTTCATTGGTCCGGTCTTCTCCTTGGGGGTCACCCGCACTCGATA
TCCAGTGACCTGAACATTGCGTGGTGTCCACTGGCCGCTCACGCTTGTGGGTGTGACCTGA
GTGAACTTCAGGTCAGTTGGTCCAGGAATAGTGGTTACTGCAGTCTGAACCAGAGGCTGA
CTCTCTCCGCTTGGATTCTGAGCATAGACACTAACCACATACTCCACTGTGGGCTGCAAGC
CTTCAATAGTCATTTCTGTTTGATCTGCACCTGCAGTTTTAGTTTTTGTTGGTCCTGGTCCAT
TTTTGGGAGTGGTGGTTACTCTGTAACCAGTAACACGGGGAACTTGAAGGCAGCCACTTGAC
GGTAATTAATGGAAATTGGCTTGCTTCCTTGCGCGGGCTGTCTCCACGGCCAGTGACAGCATA
CACACNGATGGNATNATCAACTCCAAGTTTAACGGCCCTCATGGTAACTTTAAAACTTGCTCC
CAGCCAGNGAACTTCCCGCACACGGTATTTCTTCTGGTTTTCCGAAAGNGANCCTGGAATNN
TCTCCTTGGANCAGAAGGANCNTCCAAAAACTTGGGCCCGGAACCCCTT
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FIG. 15NN

60_16473.edit

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AGCGTGGTCGCGGCCGAGGTCCTGTCAGAGTGGCACTGGTAGAAGTTCCAGGAACCCTGA
ACTGTAAGGGTTCTTCATCAGTGCCAACAGGATGACATGAAATGATGTACTCAGAAGTGTC
CTGGAATGGGGCCCATGAGATGGTTGTCTGAGAGAGAGCTTCTTGTCCTACATTCGGCGGG
TATGGTCTTGGCCTATGCCTTATGGGGCTGGCCCTTGTGGGCGGTGTGGTCCGCCTAAAAC
CATGTTCCTCAAAGATCATTTGTTGCCCAACACTGGGTTGCTGACCAGAAGTGCCAGGAAG
CTGAATACCATTTCCAGTGTCATACCCAGGGTGGGTGACGAAAGGGGTCTTTTGAACTGTG
GAAGGAACATCCAAGATCTCTGGTCCATGAAGATTGGGGTGTGGAAGGGGTTACCAGTTGG
GGAAGCTCGTCTGTCTTTTTCCTTCCAATCAGGGGCTCGCTCTTCTGATTATTCTTCAGGGC
AATGACATAAATTGTATATTCGGTTCCCGGTTCCAGGCCAGTAATAGTAGCCTCTTGTGAC
ACCAGGCGGGGCCCANGGACCACTTCTCTGGGANGAGACCCAGCTTCTCATACTTGATGAT
GTAACCCGGTAATCCTGCACGTGGCGGCTGNCATGATACCANCAAGGAATTGGGTGNGGN
GGACCTGCCCGGCGGCCCTCNA
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60_16498.edit

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AGCGTGGTCGCGGCCGAGGTCTGGGATGCTCCTGCTGTCACAGTGAGATATTACAGGATC
ACTTACGGAGAAACAGGACGAAATAGCCCTGTCCAGGAGTTCACTGTGCCTGGGAGCAAG
TCTACAGCTACCATCAGCGGCCTTAAACCTGGAGTTGATTATACCATCACTGTGTATGCTG
TCACTGGCCCGTGGAGACAGCCCCGCAAGCACCAAGCCAATTTCCATTAATTACCGAACAG
AAATTGACAAAACCATCCCAGATGCAAGTGACCGATGTTCAGGACAACAGCATTAGTGTCA
AGTGGCTGCCTTCAAGTTCCCCTGTTACTGCTTACAGAGTAACCACCACTCCCAAAAAATGG
ACCAGGACCAACAAAAAACTAAAACTGCAGGTCCAGATCAAACAGAAATGACTATTGAAG
GCTTGCAGCCCACAGTGGAGTATCTGGTTAGTGTCTATGCTCAGAATCCAAGCGGCAGAGA
GTCAGCCTCTGGCTTCAGACTGCAGTAACCACTATTCCTGCACCAACTGACCTGAAGTTCAC
TCAGGTCACACCTACAAGCCTTGAGCCGCCCAGTGGACACCACCCAATGTTCACTCACTGGAT
ATCGAGTGCGGGTGACCCCCAAGGAGAAGACCCGCACCCATGAAAGAAATCAACCTTGCT
CCTGACAGCTCATCCCGNCGGCTGTATCAGGACTTATGGGGGACTGCCCCGGCCNGGCCGNTC
GAAANCGAATTNTGAAATTTCGTTCNCACTGGCNGGCGNTTCGAGCTTNCTTNTANANGGC
CCAATTCNCCTNTACNCGGTCGTN
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61_16499.edit

```
AGCGTGGTCGCGGCCGACCTCNAGCA
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62_16483.edit

```
TCGAGCGCCCGCCCGGCCAGGTCCACCACACCCAATTCCTTGCTGGTATCATGGCAGCCGC
CACGTGCCAGGATTACCGGCTACATCATCAAGTATGAGAAGCCTGGGTCTCCTCCCAGAGA
AGTGGTCCCTCGGCCCCGCCTGGTGTCACAGACAGGCTACTATTACTGCCCTGGAACCGGCGA
ACCGAATATACAATTTATGTCATTGCCCTGAAGAATAATCAGAAGACCGAGCCCCTGATTG
GAAGGAAAAACACAGACGAGCTTCCCCAACTGGTAACCCTTCCACACCCCAATCTTCATG
GACCAGAGATCTTGGATGTTCCTTCCACAGTTCAAAAGACCCCTTTCGTCACCCACCCTGG
GTATGACACTGCAAATGGTATTCAGCTTCCTGCCACTTCTGGTCAGCAACCCAGTGTTGGG
CAACAAATGATCTTTGACGAACATGGTTTTAGGCGGCACCACACCGCCCACAACCGGCACC
CCCATAAGGNATAGCCCAAGACCATACCCCGCCGAATGTAGGACAAGAAGCTCTNTCTCA
ACAACCATCTCATGGCCCCCATTCCAGGACACTTCTGAGTACATCATTTCATGTCATCCTG
GTGGGCACTTGATGAANAACCCTTACAGTTCAGGGTTCCTGGAACTTCTACCAGNGCCACT
TCTGACACCANCTTGGCCCNGACCACCCT
```

FIG. 1500

63_16500.edit

AGCGTGGTCGCGGCCGAGGTCCATTTTCTCCCTGACGGTCCCACTTCTCTCCAATCTTGTAG
TTCACACCATTGTCATGGCACCATCTAGATGAATCACATCTGAAATGACCACTTCCAAAGC
CTAAGCACTGGCACAACAGTTTAAAGCCTGATTCAGACATTCGTTCCCACTCATCTCCAAC
GGCATAATGGGAAACTGTGTAGGGGTCAAAGCACGAGTCATCCGTAGGTTGGTTCAAGCC
TTCGTTGACAGAGTTGCCCACGGTAACAACCTCTTCCCGAACCTTATGCCTCTGCTGGTCTT
TCAGTGCCTCCACTATGATGTTGTAGGTGGCACCTCTGGTGAGGACCTGCCCGGGCGGCCC
GCTCGA

64_16493.edit

AGCGTGGTCGCGGCCGAGGTGTGCCCCAGACCAGGAATTCGGCTTCGACGTTGGCCCTGTC
TGCTTCCTGTAAACTCCCTCCATCCCAACCTGGCTCCCTCCCACCCAACCAACTTTCCCCCC
AACCCGGAAACAGACAAGCAACCCAAACTGAACCCCCTCAAAAGCCAAAAAAATGGGAG
ACAATTTCACATGGACTTTGGAAAATA·TTTTTTCCTTTGCATTCATCTCTCAAACTTAGTT
TTTATCTTTGACCAACCGAACATGACCAAAAACCAAAGTGACCTGCCCGGGCGGCCGCTC
GA

64_16500.edit

TCGAGCGGCCGCCCGGGCAGGTCCTCACCAGAGGTGCCACCTACAACATCATAGTGGAGG
CACTGAAAGACCAGCAGAGGCATAACGTTCGGGAAGAGGTTGTTACCGTGGGCAACTCTG
TCAACGAAGGCTTGAACCAACCTACGGATGACTCGTGCTTTGACCCCTACACACAGTTTCCCA
TTATGCCGTTGGAGATGAGTGGGCAACGAATGTCTGAATCAGGCTTTAAACTGTTGTGCCAG
TGCTTAGGCTTTGGAAGTGGTCATTTCAGATGTGATTCATCTACATCGTGCCATGACAATG
GTGTGAACTACAAGATTGGAGAGAAGTGGGACCGTCAGCCAGAAAATGGACCTCGGCCG
CGACCACGCT

FIG. 15PP

16501.edit

```
TCGAGCGGCCGCCCGGGCAGGTACCGGGGTGGTCAGCGAGGAGCCATTCACACTGAACTT
CACCATCAACAACCTGCGGTATGACGAGAACATGCAGCACCCTGGCTCCAGGAAGTTCAA
CACCACGGAGAGGGTCCTTCAGGGCCTGCTCAGGTCCCTGTTCAAGAGCACCAGTGTTGGC
CCTCTGTACTCTGGCTGCAGACTGACTTTGCTCAGACCTGAGAAACATGGGGCAGCCACTG
GAGTGGACGCCATCTGCACCCTCCGCCTTGATCCCACTGGTNCTGGACTGGACANANAGCG
GCTATACTTGGGAGCTGANCCNAACCTTTGGCGGNGACNCCNCTT
```

16501.2.edit

```
GAGGACTGGCTCAGCTCCCAGTATAGCCGCTCTCTGTCCAGTCCAGGACCAGTGGGATCAA
GGCGGAGGGTGCAGATGGCGTCCACTCCAGTGGCTGCCCCATGTTTCTCAAGTCTGAGCAA
AGNCAGTCTGCAGCCAGAGTACAGAGGGCCAACACTGGTGCTCTTGAACAGGGACCTGAG
CAGGCCCTGAAGGACCCTCTCCGTGGTGTTGAACTTCCTGGAGCCAGGGTGCTGCATGTTC
TCCTCATACCGCAGGTTGTTGATGGTGAAGTTCAGTGTGAATGGCTCCTCGCTGACCACCC
```

16502.1.edit

```
AGCGTGGTCGCGGCCGAGGTCCACCACACCCAATTCCTTGCTGGTATCATGGCAGCCGCCA
CGTGCCAGGATTACCGGCTACATCATCAAGTATGAGAAGCCTGGGTCTCCTCCCAGAGAA
GTGGTCCCTCGGCCCCGCCCTGGTGTCACAGAGGCCTACTATTACTGGCCTGGAACCGGGAA
CCGAATATACAATTTATGTCATTGCCCTGAAGAATAATCAGAAGAGCGAGCCCCTGATTGG
AAGGAAAAAGACACACCAGCTTCCCCAACTGGTAACCCTTCCACACCCCAATCTTCATGG
ACCANANANCTTCGATNGTCCTTTCACNGGTTNAAAAAACCCTTTTCGCCCCCCCACCTTG
GGGATTAACCTTGGGAAAANGGGGATTTNACCNTTCC
```

16502.2.edit

```
TCGAGCGGCCGCCCGGGCAGGTCCTGTCAGACTCGCACTGGTAGAAGTTCCAGGAACCCT
GAACTGTAAGGCTTCTTCATCACTGCCAACAGGATCACATGAAATGATGTACTCAGAAGT
GTCCTGGAATGCGGCCCATGACATCCTTGTCTGAGAGAGAGCTTCTTGTCCTACATTCGGC
GGGTATGGTCTTGGCCTATCCCTTATGGCGGGTGGCCGTTCTGGGCGGTGTGGTCCGCCTAA
AACCATGTTCCTCAAAGATCATTTGTTGCCCAACACTGGGTTGCTGACCACAAGTGCCAGG
CCTGGNGAAAGGAACCATCCAAAANCTCTGNCCCATG
```

FIG. 15QQ

16503.1.edit

AGCGTGGNCGCGGCCGAGGTCTGAGGATGTAAACTCTTCCCAGGGGAAGGCTGAAGTGCT
GACCATGGTGCTACTGGGTCCTTCTGAGTCAGATATGTGACTGATGNGAACTGAAGTAGGT
ACTGTAGATGGTGAAGTCTGGGTGTCCCTAAATGCTGCATCTCCAGAGCCTTCCATCATTA
CCGTTTCTTCTTTTGCTATGGGATGAGACACTGTTGAGTATTCTCTAAAGTCACCACTGAAA
TCTTCCTCCAAAGGAAAACCTGTGGAAAGCCCCTTATTTCTGCCCCATAATTTGGTTCTCC
TAATCNCTCTGAAATCACTATTTCCCTGGAAANGTTTGGGAAAAANNGGGCNACCTGNCAN
TGGAAANTGGATANAAAGATCCCACCATTTTACCCAACNAGCAGAAAGTGGGAANGGTAC
CGAAAAGCTCCAAGTAANAAAAAGGAGGGAAGTAAAGGTCAAGTGGGCACCAGTTTCAA
ACAAAACTTTCCCCAAACTATANAACCCA

16503.2.edit

AAGCGGCCGCCCGGGCAGGNNCAGNAGTGCCTTCGGGACTGGGNTCACCCCCAGGTCTGC
GGCAGTTGTCACAGCGCCAGCCCCGCTGGCCTCCAAAGCATGTGCAGGAGCAAATGGCAC
CGAGATATTCCTTCTGCCACTGTTCTCCTACGTGGTATGTCTTCCCATCATCGTAACACGTT
GCCTCATGAGGGTCACACTTGAATTCTCCTTTTCCGTTCCCAAGACATGTGCAGCTCATTTG
GCTGGCTCTATAGTTTGGGGAAAGTTTGTTGAAACTGTGCCACTGACCTTTACTTCCTCCTT
CTCTACTGGAGCTTTCCGTACCTTCCACTTCTGCTGNTGGNAAAAAGGGNGGAACNTCTTA
TCAATTTCATTGGACAGTANCCCNCTTTCTNCCCAAAACATNCAAGGGAAAATATTGATTN
CNAGAGCGGATTAAGGAACAACCCNAATTATGCGGGGCCAGAAATAAAGGGGGCTTTTCCA
CACGTNTTTTCCT

16504.1.edit

TCGACCGGCCGCCCGGGCAGGTCTGCACGCTATTGTAAGTGTTCTGAGCACATATGAGAT
AACCTGGGCCAAGCTATGATGTTCGATACGTTAGGTGTATTAAATGCACTTTTGACTGCCA
TCTCAGTGGATGACAGCCTTCTCACTGACAGCCAGACATCTTCCTCACTGTGCCAGTGGGCA
GGAGAAAGAGCATGCTGCGACTGGACCTTCGCCCGCGACCACGCT

16504.2.edit

ACCGTGGTCGCGGCCGAGGTCCACTCCCAGCCATGCTCTTTCTCCTGCCCACTGGCACAGTG
AGGAAGATCTCTGCTGTCAGTGAGAAGGCTGTCATCCACTGAGATGGCAGTCAAAAGTGC
ATTTAATACACCTAACGTATCGAACATCATAGCTTGGCCCAGGTTATCTCATATGTGCTCA
GAACACTTACAATAGCCTGCAGACCTGCCCGGGCGCCCGCTCGA

FIG. 15RR

16505.1.edit

CGAGCGGCCGCCCGGGCACGTCCAGACTCCAATCCAGAGAACCACCAAGCCAGATGTCAG
AAGCTACACCATCACAGGTTTACAACCAGGCACTGACTACAAGATCTACCTGTACACCTTG
AATGACAATGCTCGGAGCTCCCCTGTGGTCATCGACGCCTCCACTGCCATTGATGCACCAT
CCAACCTGCGTTTCCTGGCCACCACACCCAATTCCTTGCTGGTATCATGGCAGCCGCCACG
TGCCAGGATTACCGGCTACATCATCAAGTATGAGAAGCCTGGGTCTCCTCCCAGAGAAGT
GGTCCCTCGGCCCCGCCCTGGTGNCACAGAAGCTACTATTACTGGCCTGGAACCGGGAACC
GAATATACAATTTATGTCATTGCCCTGAAGAATAATCANAAGAGCGAGCCCCTGATTGGA
AGG

16505.2.edit

AGCGTGGTCGCGGCCGAGGTCCTGTCAGAGTGGCACTGGTAGAAGTTCCAGGAACCCTGA
ACTGTAAGGGGTTCTTCATCAGTGCCAACAGGATGACATGAAATGATGTACTCAGAAGTGTC
CTGGAATGCGGCCCATGAGATGGTTGTCTGAGAGAGAGCTTCTTGTCCTGTCTTTTTCCTTC
CAATCAGGGGCTCGCTCTTCTGATTATTCTTCAGGGCAATGACATAAATTGTATATTCGGTT
CCCGGTTCCAGGCCAGTAATAGTAGCCTCTGTGACACCAGGGCGGGGCCGAGGGACCACT
TCTCTGGGAGGAGACCCAGGCTTCTCATACTTGATGATGTANCCGGTAATCCTGGCACCGT
GGCGGCTGCCATGATACCACCAAGCAATTGCGTGTGGTGGCCAAGAAACGCAGGTTGGAT
GGTGCATCAATGCCAGTGGAGGCGTCGATNACCACAGGGGAGCTCCGANCATTGTCATTC
AAGGTGGACAGGTAGAATCTTGTAATCACGTGCCTGGTTTGTAAACCTG

16506.1.edit

TCGAGCGGCCGCCCGGCCAGGTTTCGTGACCGTGACCTCGAGGTGGACACCACCCTCAAG
AGCCTGAGCCAGCACATCGAGAACATCCGGAGCTCAGACGGCAGCCGCAAGAACCCCGC
CCGCACCTGCCGTGACCTCAAGATGTGCCACTCTGACTGGAAGAGTGGACAGTACTGGAT
TGACCCCAACCAAGGCTCCAACCTGCATGCCATCAAAGTCTTCTGCAACATGGAGACTGGT
GAGACCTGCGTGTACCCCACTCAGCCCAGTGTGGCCCAGAAGAACTGGTACATCAGCAAG
AACCCCAAGGACAAGAACCATGTCTGCTTCGGCGAAAGCCATGACCGATGGATTCCAGTTC
GAGTATGGCGGCCAGGGCTCCGACCCTCCTCGATGTGGACCTCGGCCCCGACCACGCTAAG
CCCGAATTCCAGCCACACTGCCGGCCCGTTACTAGTGGGCATCCGAGCTTCGTACCAAGCTTG
GCGTAATCATGGCNCATAGCTGTTTCCTGNGTGAAAATGGTATTCCCCTTCACAATTTCCC
AC

16506.2.edit

ACCGTGGTCGCGGCCCGAGGTCCACATCGGCACGGTCGGAGCCCTGGCCGCCATACTCGAA
CTGGAATCCATCGGTCATGCTCTCGCCGAACCAGACATGCCTCTTGTCCTTGGGGTTCTTGC
TGATGTACCAGTTCTTCTGGGCCACACTGCGGCTGAGTGGGGTACACGCAGGTCTCACCAGT
CTCCATGTTGCAGAAGACTTTGATGGCATCCAGGTTGCAGCCTTGGTTGGGGTCAATCCAG
TACTCTCCACTCTTCCAGTCAGAGTGGCACATCTTGAGGTCACGGCAGGTGCGGGCGGGGT
TCTTGCGGCTGCCCTCTGGGCTCCGGATGTTCTCGATCTGCTGGCTCAAGCTCTTGAACGGT
GGTGTCCACCTCGAGGTCACGGTCACGAAACCTGCCCGGGCGGCCGCTCGA

FIG. 15SS

16507.1.edit

```
AGCGTGGTCGCGGCCGAGGTCAAGAACCCCGCCCGCACCTGCCGTGACCTCAAGATGTGC
CACTCTGACTGGAAGAGTGGAGAGTACTGGATTGACCCCAACCAAGGCTGCAACCTGGAT
GCCATCAAAGTCTTCTGCAACATGGAGACTGGTGAGACCTGCGTGTACCCCACTCAGCCCA
GTGTGGCCCAGAAGAACTGGTACATCAGCAAGAACCCCAAGGACAAGAGGCATGTCTGGT
TCGGCGAGAGCATGACCGATGGATTCCAGTTCGAGTATGGCGGCCAGGGCTCCGACCCTG
CCGATGTGGACCTGCCCGNGCCGGNCCGCTCGAAAAGCCCNAATTTCCAGNCACACTTGG
CCGGCCGTTACTACTG
```

16507.2.edit

```
TCGAGCGGCCGCCCGGGCAGGTCCACATCGGCAGGGTCGGAGCCCTGGCCGCCATACTCG
AACTGGAATCCATCGGTCATGCTCTCGCCGAACCAGACATGCCTCTTGTCCTTGGGGTTCT
TGCTGATGTACCAGTTCTTCTGGGCCACACTGGGCTGAGTGGGGTACACGCAGGTCTCACC
AGTCTCCATGTTGCAGAAGACTTTGATGGCATCCAGGTTGCAGCCTTGGTTGGGGTCAATC
CAGTACTCTCCACTCTTCCAGTCAGAGTGGCACATCTTGAGGTCACGGCAGGTGCGGGCGG
GGTTCTTGACCTCGGCCGCGACCACGCT
```

16508.1.edit

```
CGAGCGGCCGCCCGGGCAGGTCCCCCCCCTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTT
TTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTT
```

16508.2.edit

```
AGCGTGGTCGCGGCCGAGGTCTGCCATTCCTTCGACTTCTCTCCAGCCGAGCTTCCCAGAA
CATCACATATCACTCCAAAAAATACCATTGCATACATGGATCAGGCCAGTGGAAATGTAAA
GAACGCCCTGAAGCTGATGGGGTCAAATGAAGGTGAATTCAAGGCTGAAGGAAATAGCA
AATTCACCTACACAGTTCTGCAGGATGCTTGCACGAAACACACTGGGGAATGGAGCAAAA
CAGTCTTTGAATATCGAACACGCAAGGCTGTGAGACTACCTATTGTAGATATTGCACCCTA
TGACATTGGTGGTCCTGATCAAGAATTGGTGCACGTTGGCCCCTGTTTGCTTTTTATAAA
CCAAACTCTATCTGAAATCCCAACAAAAAAAATTTAACTCCATATGTGTCNTCCTCTTGTTCT
AATCTTGGCAACCAGTGCAAGTGACCGACAAAATTCCAGTTATTTATTTCCAAAATGTTTG
GAAACAGTATAATTTGACAAAGAAAAAAGGATACTTCTCTTTTTTGGCTGGTCACCAAA
TACAATTCAAAAGGCTTTTTGGTTTTATTTTTTTANCCAATTCCAATTTCAAAATGTCTCAA
TGGNGCTTATAATAAAATAAACTTTCACCCTTNTTTTNTGAT
```

FIG. 15TT

16509.1.edit

```
AGCGTGGTCGCGGCCGAGGTCTGGGATGCTCCTGCTGTCACAGTGAGATATTACAGGATC
ACTTACGGAGAAACAGGAGGAAATAGCCCTGTCCAGGAGTTCACTGTGCCTGGGAGCAAG
TCTACAGCTACCATCAGCGGCCTTAAACCTGGAGTTGATTATACCATCACTGTGTATGCTG
TCACTGGCCGTGGAGACAGCCCCGCAAGCAGCAAGCCAATTTCCATTAATTACCGAACAG
AAATTGACAAACCATCCCAGATGCAAGTGACCGATGTTCAGGACAACAGCATTAGTGTCA
AGTGGCTGCCTTCAAGTTCCCCTGTTACTGGTTACAGAAGTAACCACCACTCCCAAAAATG
GACCAGGACCAACAAAAACTAAAACTGCAGGTCCAGATCAAACAGAAAATGGACTATTG
AAGGCTTGCAGCCCACAGTGGAAGTATGTGGNTAGGNGTCTATGCTCAGAATCCCAAGCC
GGAGAAAGTCAGCCTTCTGCTTTAGACTGCAGTAACCAACATTGATCGCCCTAAAGGACT
GGNCATTCACTTGGATGGTGGATGTCCAATTC
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16509.2.edit

```
TCGAGCGGCCGCCCGGGCAGGTCCTTGCAGCTCTGCAGNGTCTTCTTCACCATCAGGTGCA
GCGAATAGCTCATGGATTCCATCCTCAGGGCTCGAGTAGGTCACCCTGTACCTGGAAACTT
GCCCCTGTGGGCTTTCCCAAGCCAATTTTGATGGAATCGACATCCACATCAGNGAATGCCAG
TCCTTTAGGGCGATCAATGTTGGTTACTCCAGTCTGAACCAGAGGCTGACTCTCTCCGCTT
GGATTCTGAGCATAGACACTAACCACATACTCCACTGTGCGGCTGCAAGCCTTCAATAGTCA
TTTCTGTTTGATCTGGACCTCCAGTTTTAAGTTTTTGGTGGTCCTGNCCCATTTTTGGGAAG
TGGGGGGTTACTCTGTAACTAGTAACAGGGGAACTTGAAGGCAGCCACTTGACACTAATG
CTGTTGTCCTGAACATCGCTCACTTGCATCTGGGGATCGTTTGACAATTTCTGTTCGGCA
AATTAATGGAAATTGGCTTCCTGCTTGGCGGGGCTGNCTCCACGCGGCCACTGACAGCATA
C
```

16510.1.edit

```
TCGAGCGGCCGCCCGGGCAGGTCCTTGCAGCTCTGCAGTGTCTTCTTCACCATCAGGTGCA
GCGAATAGCTCATGGATTCCATCCTCAGGGCTCGAGTAGGTCACCCTGTACCTGGAAACTT
GCCCCTGTGGGCTTTCCCAAGCCAATTTTGATGGAATCGACATCCACATCAGTGAATGCCAG
TCCTTAGGGCGATCAATGTTGGTTACTCCAGTCTGAACCAGAGGCTGACTCTCTCCGCTT
GGATTCTGAGCATAGACACTAACCACATACTCCACTGTGGGCTGCAAGCCTTCAATAGTCA
TTTCTGTTTGATCTGGACCTCCAGTTTTAAGTTTTTGTTGGNCCTGNNCCATTTTTGGGGAA
GGGGTGGTTACTCTTGTAACCACTAACAGGGGAACTTGAAGCAGCCACTTGACACTAATG
CTGCTGGCCTGAACATCGCTCACTTGCATCTGGGATGGTTTGGTCAATTTCTGTTCGGTAAT
TAATGCGAAATTGGCTTACTGGCTTGCGCGGGCTGTCTCCACGGNCAGTGACAAGCATAC
ACAGGNGATGGGTATAATCAACTCCAGGTTTAAGGCCNCTGATGGTA
```

16510.2.edit

```
ACCGTGGTCGCGCCCGACGTCTGGGATGCTCCTGCTGTCACAGTGAGATATTACAGGATC
ACTTACGGAGAAACAGGAGGAAATAGCCCTGTCCAGGAGTTCACTGTGCCTGGGAGCAAG
TCTACAGCTACCATCACCGGCCTTAAACCTGGAGTTGATTATACCATCACTGTGTATGCTG
TCACTGGCCGTGGAGACAGCCCCGCAAGCAGTAAGCCAATTTCCATTAATTACCGAACAG
AAATTGACAAACCATCCCAGATGCAAGTGACCGATGTTCAGGACAACAGCATTAGTGTCA
AGTGGCTGCCTTCAAGTTCCCCTGTTACTGGTTACAGAGTAACCACCACTCCCAAAAATGG
GACCAGGACCAACAAAAAACTAAAACTGCANGGTCCAGATCAAACAGAAATGACTATTG
AAGGCTTGCAGCCCACAGTGGAGTATGTGCGGTTAGTGTCTATGCTCAGAATNCCAAGCGG
AGACAGTCAGCCTCTCGTTCAGACT
```

FIG. 15UU

16511.1.edit

```
TCGAGCGGCCGCCCGGGCAGGTCAGCGGCTCTCAGGACGTCACCACCATGGCCTGGGCTCT
GCTCCTCCTCAGCCTCCTCACTCAGGGCACAGGGTCCTGGGCCCAGTCTGCCCTGACTCAG
CCTCCCTCCGCGTCCGGGTCTCCTGGACAGTCAGTCACCATCTCCTGCACTGGAACCAGCA
GTGACGTTGGTGCTTATGAATTTGTCTCCTGGTACCAACAACACCCAGGCAAGGCCCCCAA
ACTCATGATTTCTGAGGTCACTAAGCGGCCCTCAGGGGTCCCTGATCGCTTCTCTGGCTCC
AAGTCTGGCAACACGGCCTCCCTGACCGTCTCTGGGCTCCANGCTGAGGATGANGCTGATT
ATTACTGGAAGCTCATATGCAGGCAACAACAATTGGGTGTTCGGCGGAAGGGACCAAGCT
GACCGTNCTAAGGTCAAGCCCAAGGCTTGCCCCCCTCGGTCACTCTGTTCCCACCCTCCTCT
GAAGAAGCTTTCAAGCCAACAANGNCACACTGGGTGTGTCTCATAAGTGGACTTTCTACCC
```

16511.2.edit

```
AGCGTGGTCGCGGCCGAGGTCTGTAGCTTCTGTGGGACTTCCACTGCTCAGGCGTCAGGCT
CAGGTAGCTGCTGGCCGCGTACTTGTTGTTGCTTTGNTTGGAGGGTGTGGTGGTCTCCACT
CCCGCCTTGACGGGGCTGCTATCTGCCTTCCAGGCCACTGTCACGGCTCCCGGGTAGAAGT
CACTTATGAGACACACCAGTGTGGCCTTGTTGGCTTGAAGCTCCTCAGAGGAGGGTGGGA
ACAGAGTGACCGAGGGCGCAGCCTTGCCCTGACCTAGGACGGTCAGCTTGGTCCCTCCGC
CGAACACCCAATTGTTGTTGCCTGCATATGAGCTGCAGTAATAATCAGCCTCATCCTCAGC
CTGGAGCCCAGAGACNGTCAAGGGAGGCCCGTGTTTGCCCAAGACTTGGAAGCCACANAAG
CGATCAGGGACCCCTGAGCGCCCCTTTACNGACCTCAAAAAATCATGAATTTGGGGGGCCC
TTTGCCTGGGGNGTTGGTTGGTNACCAGNAAAACAAAATTTCATAAAGCACCAACGTCACT
GCTGGTTTCCAGTGCANGAANATGCTGAACTGAANTGTCC
```

16512.1.edit

```
AGCGTGGTCGCGGCCGAGGTCCAGCATCAGGAGCCCCGCCTTGCCGGCTCTGGTCATCGCC
TTTCTTTTTGTGGCCTGAAACGATGTCATCAATTCGCAGTAGCAGAACTGCCGTCTCCACTG
CTGTCTTATAAGTCTGCAGCTTCACAGCCAATGGCTCCCATATGCCCAGTTCCTTCATGTCC
ACCAAAGTACCCGTCTCACCATTTACACTCCAGCTCTCACAGTTCTCCTGGGTGTGCTTGG
CCCGAAGCGGAGGTAAGTANACGGATGGTGCTGGTCCCACAGTTCTGGATCAGGGTACGAC
GAATGACCTCTAGGGCCTCGGCNACAAGCCCTGTATGCACCTGCCCGGGCGGGCCCGCTC
GA
```

16512.2.edit

```
TCGAGCGGCCGCCCGGGCCAGGTCCATACAGGGCTGTTGCCCAGGCCCTAGAGGNCATTCC
TTGTACCCTGATCCAGAACTGTGGGACTAGCACCATCCGTCTACTTACCTCCCTTCGGGCC
AAGCACACCCAGGAGAACTCTGAGACCTGGGGTGTAAATGGNGAGACGGGTACTTTGGTG
GACATGAAGGAACTGGGCATATGGGACCCATTCGCTCNGAAGCTGCANACTTATAAGACA
GCAGTGGAGACGGCAGTTCTCCTACTGCGAATTGATGACATCGTTTCAGGCCACAAAAAG
AAAGGCGATGACCANAGCCCGCCAAGCCGGCGCTTCCTCATGCTGGACCTCGGCCGCCGAC
CACGCTT
```

FIG. 15VV

16514.1.edit

AGCGTGGTCGCGGCCGAGGTCCACTAGAGGTCTGTGTGCCATTGCCCAGGCAGAGTCTCTG
CGTTACAAAGTCCTAGGAGGGCTTGCTGTGCGGAGGGCCTGCTATGGTGTGCTGCGGTTCA
TCATGGAGAGTGGGGCCAAACGGCTGCGAGGTTGTGGTGTCTGGGAAACTCCGAGGACAGA
GGGCTAAATCCATGAAGTTTGTGGATGGCCTGATGATCCACAGCGGAGACCCTGTTAACTA
CTACGTTGACACTGCTGTGCGCCACGTGTTGCTCANACAGGGTGTGCTGGGCATCAAGGTG
AAGATCATGCTGCCCTGGGACCCANCTGGCAAAAATGGCCCTTAAAAACCCCTTGCCNTG
ACCACGTGAACCATTTGTGNGAACCCCAAGATGAAANATACTTGCCCACCACCCCCCATTC

16514.2.edit

TCGAGCGGCCGCCCGGCCAGGTCTGCCAAGGAGACCCTGTTATGCTGTGGGGACTGGCTG
GGGCATGGCAGGCGGCTCTGGCTTCCCACCCTTCTGTTCTGAGATGGGGGTGGTGGGCAGT
ATCTCATCTTTGGGTTCCACAATGCTCACGTGGTCAGGCAGGGGCTTCTTAGGGCCCAATCT
TACCAGTTGGGTCCCAGGGCAGCATGATCTTCACCTTGATGCCCAGCACACCCTGTCTGAG
CAACACGTGGCGCACAGCAGTGTCAACGTAGTAGTTAACAGGGTCTCCGCTGTGGATCAT
CAGGCCATCCACAAACTTCATGGATTTAGCCCTCTGTCCTCGGAGTTTCCCAAAAACACCAC
AACCTCGCCAGCCTTTGGGCCCCACTTCTTCATGAATGAAACCGCAGCACACCATTANCAA
GGCCCTTCCCGCACAGGNAAGCCCTTCCTAAGGAGTTTTGTAAACGCAAAAAACTCTTGCCT
GGGGCAAATGGGCACACAGACCTNTANTNCGACCTTGGNCCGCGAACCACCGCTT

16515.1.edit

AGCGTGGTCGCGGCCGAGGTCTGGCCCTCCTGGCAAGCGCTCCTGAAGATGGTCACCCTGG
AAAACCCGGACGACCTGGTGAGAGAGGACGAGTTGTTGGACCACAGGGTGCTCGTGGTTTCCC
TGGAACTCCTGGACTTCCTGCCTTCAAAAGCCATTAGGGGACACAATGGTCTGGATGGATTG
AAGGGACAGCCCCGTGCTCCTGGTGTGAAGGGTGAACCTGGNGCCCCTGGTGAAAAATGGA
ACTCCAGGTCAAACAGGAGCCCCNCGGCCTTCCTGGNGAGAGAGGACGTGTTGGTGCCCCT
GGCCCANACCTGCCCGGGCGGCCGGCTCNAAAAGCCGAAATCCAGNACACTGGCGGCCGNT
ACTANTGGAATCCGAACTTCGGCTACCAAAGCTTGGCCCGTAATCATGGCCATAGCTTGTTCC
CTGGGCGNGGAAATTCGTATTCCTCGCTNCCAATTCCACACAACATACCGAACCCGGAAAGCA
TTAAACTCTAAAAGCCTTGGGGGGGGCCTAAATGANCTGAGCNTAACTCNCATTTAATTGG
CGTTCCGCTTCACTGCCCCCGCTTTTCCAGTCCGGCNA

16515.2.edit

TCGAGCGGCCGCCCGGCCAGGTCTGGGCCTAGGGCCACCAACACGTCCTCTCTCACCAGGA
AGCCCACGGGCTCCTGTTTGACCTGGAGTTCCATTTTCACCAGGGGCACCAGGTTCACCCT
TCACACCAGGAGCACGGGCTGTCCCTTCAATCCATCCAGACCATTGTGNCCCCTAATGCC
TTTGAAGCCAGGAAGTCCACCGACTTCCAGGGAAACCACGAGCACCCTGTGGTCAACAAC
TCCTCTCTCACCAGGTCGTCCGGGTTTTCCAGGCTGACCATCTTCACCAGCCTTGCCAGGA
GGGCCAGACCTCGGCCGGCGACCACGCT

FIG. 15WW

16516.1.edit

ANCGTGGTCGCGGCCGAGGTCCTCACCAGAGGTGNCACCTACAACATCATAGTGGAGGCA
CTGAAAGACGANCAGAGGCATAAGGTTCGGGAAGAGG

16516.2.edit

TCGAGCGGCCGCCCGGGCAGGTCCATTTTCTCCCTGACGGTCCCACTTCTCTCCAATCTTGT
AGTTCACACCATTGTCATGGCACCATCTAGATGAATCACATCTGAAATGACCACTTCCAAA
GCCTAAGCACTGGCACAACAGTTTAAAGCCTGATTCAGACATTCGTTCCCACTCATCTCCA
ACGGCATAATGGGAAACTGTGTAGGGGTCAAAGCACGAGTCATCCGTAGGTTGGTTCAAG
CCTTCGTTGACAGAGTTGTCCACGGTAACAACCTCTTCCCGAACCTTATGCCTCTGCTGGTC
TTTCAGTGCCTCCACTATGATGTTGTAGGTGGCACCTCTGGTGAGGACCTCNGNCCNGAAC
AACGCTTAAGCCCGNATTCTGCAGAATAATCCCATCACACTTGGCGGCCGCTTCGANCATG
CATCNTAAAAGGGGCCCCAATTTCCCCCTTATAAGNGAANCCGTATTTNCCAATTTCACTG
GNCCCGCCGNTTTTACAAACGNCGGTGAACTGGGGAAAAACCCTGGCGGTTACCCAACTT
TAATCGCCNTTGGCAGCACAATCCCCCCTTTTCGNCCANCNTGGGCGTAAATAACCGAAAA

16517.1.edit

ANCGNGGTCGCGCCCGANGTNTTTTTTCTTNTTTTTT

16518.1.edit

AGCGTGGTCGCGCCCGAGGTCTGAGGTTACATGCGTGGTGGTGGACGTGAGCCACGAAGA
CCCTGAGGTCAAGTTCAACTGGTACGTGGACGGCGTGGAGGTGCATAATGCCAAGACAAA
GCCGCGGGAGGAGCACTACAACAGCACGTACCGGGNGGTCAGCGTCCTCACCGTCCTGCA
CCAGAATTGCTTGAATGGCAAGGAGTACAAGNGCAAGGTTTCCAACAAAGCCNTCCCAGC
CCCCNTCGAAAAAAACCATTTCCAAAGCCAAAGGGCAGCCCCGAGAACCACAGGTGTACAC
CCTGCCCCCATCCCGGGAGGAAAACANCAANAACCNGGTTCAGCCTTAACTTGCTTGGTC
NAANGCTTTTTATCCCAACCNACTTCCCCCNTGGAANTGCGAAAAACCAATGGGCCAANC
CGAAAAACAATTACAANAACCCC

16518.2.edit

TCGACCGGCCGCCCGCGGCAGGTGTCGCAGTCCAGCACGGGAGGCGTGGTCTTGTAGTTGT
TCTCCGGCTGCCCATTGCTCTCCCACTCCACGGCGATGTCGCTGCCATAGAAGCCTTGAC
CAGGCAGGTCAGGCTGACCTGGTTCTTGGTCATCTCCTCCCGGGATGGGGGCACGGTGAA
CACCTGGGGTTCTCGGGGCTTGCCCTTTGGTTTGAANATGGTTTTCTCGATGGCGGCTGG
AAGGCTTTGTTGNAAACCTTCCACTTGACTCCTTGCCATTCACCCAGNCCTGGNCCACGA
CGGNGAGGACNCTNACCACACGGAACCGGGCTGGTGGACTGCTCC

FIG. 15XX

16519.1.edit

AGCGTGGTCGCGGACGANGTCCTGTCAGAGTGGNACTGGTAGAAGTTCCANGAACCCTGA
ACTGTAAGGGTTCTTCATCAGTGCCAACAGGATGACATGAAATGATGTACTCAGAAGNGN
CCTGGAATGGGCCCCATGANATGGTTGCC

16519.2.edit

TCGAGCGGCCGCCCGGGCAGGTCCACCACACCCAATTCCTTGCTGGTATCATGGCAGCCGC
CACGTGCCAGGATTACCGGCTACATCATCAAGTATGAGAAGCCTGGGTCTCCTCCCAGAGA
AGTGGTCCCTCGGCCCCGCCCTGGTGTCACAGAGGCTACTATTACTGGCCTGGAACCGGGA
ACCGAATATACAATTTATGTCATTGCCCTGAAGAATAATCAGAAGAGCGAGCCCCTGATTG
GAAGGAAAAAGACAGACGAGCTTCCCCAACTGGTAACCCTTCCACACCCCAATCTTCATG
GACCAGAGATCTTGGATGTTCCTTCCACAGTTCAAAAGACCCCTTTCGGCACCCCCCCTGG
GTATGAACCTGGGAAAAANGGNANTTAANCTTTCCTGGCA

16520.1.edit

AGCGTGGTCGCCGCCGAGGTCTGGGATGCTCCTGCTGTCACAGTGAGATATTACAGGATC
ACTTACGGAGAAACAGGACGAAATAGCCCTGTCCAGGAGTTCACTGTGCCTGGGAGCAAG
TCTACAGCTACCATCACCGCCCTTAAACTTGGAGTTGATTATACCATCACTGTGTATGCTG
TCACTCGCCGTGGAGACACAGCCCCGCAAGCAGCAAGCCAATTTCCATTAATTACCGAACAG
AAATTGACAAACCATCCCAGATGCAAGTGACCGATGTTCACGACAACAGCATTAGTGTCA
AGTGCCTGCCTTCAAGGTNCCCTGGTACTGCGTTACAGANTAACCACCACTCCCAAAAATG
GACCAGGAACCACAAAAAACTTAAACTGCACCGTCCAGATCAAAACAGAAATGACTATTGA
ANCCTTGCAGCCCACACTGGGAGTATGNCGGTACTGNCTATGCTTCAGAATCCAAGCGGCA
AAAANGTCAAGCCTTNTGCGTTCAA

16520.2.edit

TCGAGCGGCCCCCCGGGCAGGTCCTTGCAGCTCTCCACTGTGTCTTCTTCACCATCAGGTGCA
GGGAATAGCTCATGGATTCCATCCTCAGGGCTCGAGTAGCTCACCCTGTACCTGGAAACTT
GCCCCTGTGGGCTTTCCCAAGCAATTTTGATGGAATCGACATCCACATCAGTGAATGCCAG
TCCTTTACGGCGATCAATGTTGGTTACTGCAGNCTGAACCAGAGGCTGACTCTCTCCGCTT
GGATTCTGAGCATAGACACTAACCACATACTCCACTGTGGGCTGCAANCCTTCAATAANNC
ATTTCTGTTTGATCTGGACC

16521.2.edit

TCGAGCGGCCGCCCGCGGCAGGTCTGGTCGGGTCCTGGCACACGCACATGGGCGGNGTTGNT
CTNATCCAGCTGCCCAGCCCCCATTGGCGAGTTTGAGAACGTGTGCAGCAATGACAACAA
NACCTTCGACTCTTCCTGCCACTTCTTTGCCACAAAGTGCACCCTGGAGGGCACCAAGAAG
GGCCACAAGCTCCACCTGGACTACATCGGCGCCTTGCAAATACATCCCCCCTTGCCTGGACT
CTGAGCTGACCGAATTCCCCCTTGCGCATCCGGGACTCGCTCAAGAACCGTCCTGGCACCC
TTGTATCANACGGATGAACACACNACCC

FIG. 15YY

16522.1.edit

```
AGCGTGGTCGCGGCCGAGGTCTGTCCTACAGTCCTCAGGACTCTACTCCCTCAGCAGCGTG
GTGACCGTGGCCTCCAGCAACTTCGGCACCCAGACCTACACCTGCAACGTAGATCACAAGC
CCAGCAACACCAAGGTGGACAAGAGAGTTGAGCCCAAATCTTGTGACAAAACTCACACAT
GCCCACCGTGCCCAGCACCTGAACTCCTGGGGGGACCGTCAGTCTTCCTCTTCCCCCGCAT
CCCCCTTCCAAACCTGCCCGGGCGGCCGCTCGAAAGCCGAATTCCAGCACACTGGCGGCCG
GTACTAGTGGANCCNAACTTGGNANCCAACCTGGNGGAANTAATGGGCATAANCTGTTTC
TGGGGGGAAATTGGTATCCNGTTTACAATTCCCNCACAACATACGAGCCGGAAGCATAAA
AGNGTAAAAGCCTGGGGGNGGCCTANTGAAGTGAAGCTAAACTCACATTAATTNGCGTTG
CCGCTCACTGGCCCGCTTTTCCAGC
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16522.2.edit

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TCGAGCGGCCGCCCGGGCAGGTTTGGAAGGGGGATGCGGGGGAAGAGGAAGACTGACGG
TCCCCCCAGGAGTTCAGGTGCTGGGCACGGTGGGCATGTGTGAGTTTTGTCACAAGATTTG
GGCTCAACTCTCTTGTCCACCTTGGTGTTGCTGGGCTTGTGATCTACGTTGCAGGTGTAGGT
CTGGGNGCCGAAGTTGCTGGAGGGCACGGTCACCACGCTGCTGAGGGAGTAGAGTCCTGA
GGACTGTANGACAGACCTCGGCCGNGACCACGCTAAGCCGAATTCTGCAGATATCCATCA
CACTGGCGGCCGCTCCGAGCATGCATTTTAGAGG
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16523.1.edit

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AGCGTCGNCGCGGACGANCACAACAACCCC
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16523.2.edit

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TCGAGCGGCCGCCCGGGCAGGNCCACATCGGCAGGGTCGGAGCCCTGGCCGCCATACTCG
AACTGGAATCCATCGGTCATGCTCTTGCCGAACCAGACATGCCTCTTGTCCTTGGGGTTCTT
GCTGATGNACCAGTTCTTCTGGGCCCACACTGGGCTGAGTGGGGTACACGCAGGTCTCACCA
GTCTCCATGTTGCAGAAGACTTTGATGGCATCCAGGTTGCAGCCTTGGTTGGGGTCAATCC
AGTACTCTCCACTCTTCCAGTCAGAGTGCCACATCTTGACGTCACGGCAGGTGCGGGCGGG
GTTCTTGACCT
```

16524.1.edit

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AGCGTGCTCGCGCCCGACGTCCAGCCTGGAGATAANCGTGAAGGTCGTGCCCCCGGACTT
CCAGGTATAGCTGGACCTCCTGGTAGCCCTGGTGAGAGAGGTGAAACTGGCCCTCCACGA
CCTGCTCGTTTCCCTGGTGCTCCTGGACACAGAATGGTGAACCTGGNGGTAAAGGAGAAAGA
GGGGCTCCGGNTGANAAAGGTGAACCAGCCCCTCCTGNATTGGCAGGGGCCCCANGACTT
AGACGTGGAGCTGGCCCCCCCTGCCCCCGAAGGACGAAAGCGGTGCTGCTGGTCCTCCTGGG
CCACCTGG
```

FIG. 15ZZ

16524.2.edit

TCGAGCGGCCGCCCGGGCAGGTCTGGGCCAGGAGGACCAATAGGACCAGTAGGACCCCTT
GGGCCATCTTTCCCTGGGACACCATCAGCACCTGGACCGCCTGGTTCACCCTTGTCACCCTT
TGGACCAGGACTTCCAAGACCTCCTCTTTCTCCAGGCATTCCTTGCAGACCAGGAGTACCA
NCAGCACCAGGTGGCCCAGGAGGACCAGCAGCACCCTTTCCTCCTTCGGGACCAGGGGGA
CCAGCTCCACCTCTAAGTCCTGGGGCCCCTGCCAATCCAGGAGGGGCCTCCTTCACCTTTCTC
ACCCGGAGCCCCTCTTTCT

16526.1.edit

TCGAGCGGCCGCCCGGGCAGGTCCACCGGGATATTCGGGGGTCTGGCAGGAATGGGAGGC
ATCCAGAACGAGAAGGAGACCATGCAAAGCCTGAACGACCGCCTGGCCTCTTACCTGGAC
AGAGTGAGGAGCCTGGAGACCGACAACCGGAGGCTGGAGAGCAAAATCCGGGAGCACTT
GGAGAAGAAGGGACCCCAGGTCAGAGACTGGAGCCATTACTTCAAGATCATCGAGGACCT
GAGGGCTCANATCTTCGCAAATACTGCNGACAATGCCCG

16526.2.edit

ATGCGNGGTCGCGGCCGANGACCANCTCTGGCTCATACTTGACTCTAAAGNCNTCACCAG
NANTTACGGNCATTGCCAATCTGCACAACCATGCGGGCATTGTCCGCANTATTTGCGAAG
ATCTGACCCCTCAGGNCTTCGATGATCTTGAAGTAANGGCTCCAGTCTCTGACCTGGGGTC
CCTTCTTCTCCAAGTGCTCCCGGATTTTGCTCTCCAGCCTCCGGTTCTCGGTCTCCAAGNCT
TCTCACTCTGTCCAGCAAAAGAGCCCAGGCGGNCGATCACGGCTTTTGCATGGACT

16527.1.edit

AGCGTGGTCGCGGCCGAGCTTGTACAAGCTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTT
TTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTT

16527.2.edit

TCGAGCGGCCGCCCGGGCAGGTCTGCCAACACCAAGATTGGCCCCCGCCGCATCCACACA
GTTNGTGTGCGGGGAGGTAACAAGAAATACCGTGCCCTGAGGNTGGACGNGGGGAATTTC
TCCTGGGGCTCAGAGTGTTGTACTCGTAAAACAAGGATCATCGATGTTGTCTACAATGCAT
CTAATAACGAGCTGGTTCGTACCAAGACCCTGCTGAAGAATTGCATCGTGCTCATNGACA
GCACACCGTACCGACAGTGCGTACCGAAGTCCCACTATGCNCCT

FIG. 15.4.4.4

16523.1.edit

TCGAGCGGCCGCCCGGGCAGGTCCACCACACCCAATTCCTTGCTGGTATCATGGCAGCCGC
CACGTGCCAGGATTACCGGCTACATCATCAAGTATGAGAAGCCTGGGTCTCCTCCCAGAGA
AGTGGTCCCTCGGCCCCGCCCTGGTGTCACAGAGGCTACTATTACTGGCCTGGAACCGGGA
ACCGAATATACAATTTATGTCATTGCCCTGAAG

16523.2.edit

AGCGTGNTCNCGGCCGAGGATGGGGAAGCTCGNCTGTCTTTTTCCTTCCAATCAGGGGCTN
NNTCTTCTGATTATTCTTCAGGGCAANGACATAAATTGTATATTCGGNTCCCGGTTCCAGN
CCAGTAATAGTAGCCTCTGTGACACCAGGGCGGGGCCGAGGGACCACTTCTCTGGGAGGA
GACCCAGGCTTCTCATACTTGATGATGAAGCCGGTAATCCTGGCACGTGGGCGGCTGCCAT
GATACCACCAANGAATTGGGTGTGGTGGACCTGCCCGGGCGGGCCGCTCGAAAANCCGAA
TTCNTGCAAGAATATCCATCACACTTGGGCGGGCCGNTCGAACCATGCATCNTAAAAGGG
CCCCAATTTCCCCCCTATTAGGNGAAGCCNCATTTAACAAATTCCACTTGG

16529.1.edit

TCGAGCGGCCGCCCGGGCAGGTCTCGCGGTCGCACTGGTGATGCTGGTCCTGTTGGTCCCC
CCGGCCCTCCTGGACCTCCTGGTCCCCCTGGTCCTCCCAGCGCTGGTTTCGACTTCAGCTTC
CTGCCCCAGCCACCTCAAGAGAAGGCTCACGATGGTGGCCGGCTACTACCGGGCTGATGAT
GCCAATGTGGTTCGTGACCGTGACCTCGAGGTGGACACCACCCTCAAGAGCCTTGAGCCA
GCAGAATCGAAAAACATTCGGAACCCAAGAAGGGCAAGCCCGCAAAGAAACCCCGCCCGC
ACCTGGCCGGNGAACCTCCAAGAAANGTGCCCACNTCTTGACTGGGAAAAAAAAGGGAAAANT
ACTTGGAATTGGAC

16529.2.edit

AGCGTGGTCGCGGCCCGAGGTCCACATCGCCAGGGTCGGCAGCCCTCGCCGCCATACTCGAA
CTGGAATCCATCGGTCATGCTCTCGCCGAACCAGACATGCCTCTTGTCCTTGGGGTTCTTGC
TGATGTACCAGTTCTTCTGGGCCACACTGCCCTGACTGGGGTACACGCAGGTCTCACCAGT
CTCCATGTTGCAGAAGACTTTGATGGCATCCAGGTTGCAGCCTTGGTTGGGGTCAATCCAG
TACTCTCCACTCTTCCAGTCAGAACTGGCACATCTTGAGGTCACGGCAGGGTGCGGGCGGG
GTTCTTGCGGGCTGCCCTTCTGGGCTCCCCGAATGTTCTNNGAACTTGCTGG

FIG. 15BBB

16530.1.edit

AGCGTGGTCGCGGCCGAGGTCCACTAGAGGTCTGTGTGCCATTGCCCAGGCAGAGTCTCTG
CGTTACAAACTCCTAGGAGGGCTTGCTGTGCGGAGGGCCTGCTATGGTGTGCTGCGGTTCA
TCATGGAGAGTGGGGCCAAAGGCTGCGAGGTTGTGGTGTCTGGGAAACTCCGAGGACAGA
GGGCTAAATCCATGAAGTTTGTGGATGGCCTGATGATCCACAGCGGAGACCCTGTTAACTA
CTACGTTGACACTTGCTTGTGCGCCACGTGTTGCTCANACANGGGTGGGCTGGGCATCAAG
GNG

16530.2.edit

TCGAGCGGCCGCCCGGGCAGGTCTGCCAAGGAGACCCTGTTATGCTGTGGGGACTGGCTG
GGGCATGGCAGGCGGCTCTGGCTTCCCACCCTTCTGTTCTGAGATGGGGGTGGTGGGCAGT
ATCTCATCTTTGGGTTCCACAATGCTCACGTGGTCAGGCAGGGGCTTCTTAGGGCCAATCT
TACCAGTTGGGTCCCAGGGCAGCATGATCTTCACCTTGATGCCCAGCACACCCTGTCTGAG
CAACACGTGGCGCACAGCAAGTGTCAACGTAAGTAAGTTAACAGGGTCTCCGCTGTGGAT
CATCAGGCCATCCACAAACTTCATGGATTTAACCCTCTGTCCTCGGAG

16531.1.edit

TCGAGCGGCCGCCCGCCCACGTCTTTCAGAGGTTCCAAGGTCCACTGTGGCAGGTCCCAGC
AGTGCTGGTGGTGGGCACACAGGTCCGATGGGTGAAACCATTGACATAGAGACTGTTCCT
GTCCAGGGTGTAGCGGCCCAGCTCTTTGATGCCATTGGCCAGTTGGCTCAGCTCCCAGTAC
AGCCGCTCTCTGTTGAGTCCAGGGCTTTTGGGGTCAAGATGATGGATGCAGATGGCATCCA
CTCCAGTGGCTGCTCCATCCTTCTCGGCACCTGAGAGAGGCTCAGTCTGCAGCCAGAGTACAG
AGGGCCAACACTGGTGTTCTTTGAATA

16531.2.edit

AGCGTGGTCGCGGCCCAGGTCTGTACTCGGGAGCTAAGCAAACTGACCAATGACATTGAAG
AGCTGGGCCCCTACACCCTGGACACGAAACAGTCTCTATGTCAATGGTTTCACCCATCAGAG
CTCTGTGNCCACCACCAGCACTCCTGCCACCTCCACAGTGGATTTCAGAACCTCAGGCACT
CCATCCTCCCTCTCCAGCCCCACAATTATGCCTGCTCGCCCCTCTCCTGCTACCATTCACCCT
CAACTTCACCATCACCAACCTGCACTATGGGGAGGACATGGGTCACCCTGNCTCCAGCAA
GTTCAACACCACA

16532.1.edit

TCGAGCGGCCGCCCGGACAGGTCTCGGCCGGATAGCACCGGGCATATTTTGGAATGGATGA
GGTCTGGCACCCTCAGCAGTCCAGCGAGGACTTGGTCTTAGTTGAGCAATTTGGCTAGGAG
GATAGTATGCAGCACGGNTCTGAGNCTCTGGGATAGCTGCCATCAAGTAACCTGAAGGAG
GTGCTGCCTGGTANGGGTTGATTACAGGGTTGGGAACAGCTCGTACACTTGCCATTCTCTG
CATATACTGGTTAGTGAGGTGAGCCTGGCCCTCTTCTTTTG

FIG. 15CCC

01_16558_3.edit

AGCGTGGTCGCGGCCGAGGTGAGCCACAGGTGACCGGGGCTGAAGCTGGGGCTGCTGGNC
CTGCTGGTCCTG

02_16558_4.edit

CAGCNGCTCCNACGGGGCCTGNGGGACCAACAACACCGTTTTCACCCTTAGGCCCTTTGGC
TCCTCTTTCTCCTTTAGCACCAGGTTGACCAGCAGCNCCANCAGGACCAGCAAATCCATTG
GGGCCAGCAGGACCGACCTCACCACGTTCACCAGGGCTTCCCCGAGGACCAGCAGGACCA
GCAGGACCAGCAGCCCCAGCTTCGCCCCGGTCACCTGTGGCTCACCTCGGCCGCGACCACG
CT

03_16535_1.edit

TCGAGCGGTCGCCCGGGCAGGTCCACCGGGATAGCCGGGGGGTCTGGCAGGAATGGGAGGC
ATCCAGAACGAGAAGGAGACCATGCAAAGCCTGAACGACCGCCTGGCCTCTTACCTGGAC
AGAGTGAGGCAGCCTGGAGACCGANAACCGGAGGCTGGANAGCAAAATCCGGGCAGCACTT
GGAGAAGAAGGGACCCCAGGTCAAGAGACTGCAGCCATTACTTCAAGATCATCGAGGGA
CCTGGAGG

04_16535_2.edit

AGCGNGGTCGCGGCCGACGTCCAGCTCTGTCTCATACTTGACTCTAAAGTCATCAGCAGCA
AGACCGGGCATTGTCAATCTGCAGAACCATGCGGGCATTGTCCGCAGTATTTGCGAAGATCT
GAGCCCTCAGGTCCTCGATGATCTTGAAGTAATGGCTCCACTCTCTGACCTCGGGTCCCTT
CTTCTCCAAGTGCTCCCCGATTTTGCTCTCCAGCCTCCGGTTCTCGGTCTCCAGGCTCCTCA
CTCTGTCCACGTAAGAAGCCCAGCCGGTGGTTCAGGCTTTGCATGGTCTCCTTCTCGTTCT
GGATGCCTCCCATTCCTGCCAGACCC

05_16536_1.edit

TCGAGCGGCCGCCCGGGCAGGTCAGGAACCACATTGGTCTTAGAGCCACTGCCTCCTGGA
TTCCACCTGTGCTGCGGACATCTCCAGGGAGTGCAGAAGGGAAGCAGGTCAAACTGCTCA
GATCAGTCAGACTGGCTGTTCTCAGTTCTCACCTGAGCAAGGTCAGTCTGCAGCCAGAGTA
CAGAGGGCCAACACTGGTGTTCTTGAACAAGGGCTTGAGCAGACCCTGCAGAACCCTCTTC
CGTGGTGTTGAACTTCCTGGAAACCAGGGTGTTGCATGTTTTTCCTCATAATGCAACGTTG
GTGATGG

FIG. 15DDD

07_16537.1.edit

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AGCGTGGTCGCGGCCGAGGTCCACATCGGCAGGGTCGGAGCCCTGGCCGCCATACTCGAA
CTGGAATCCATCGGTCATGCTCTCGCCGAACCAGACATGCCTCTTGTCCTTGGGGTTCTTGC
TGATGTACCAGTTCTTCTGGGCCACACTGGGCTGAGTGGGGTACACCGCAGGTCTCACCAG
TCTCCATGTTGCAGAAGACTTTGATGGCATCCAGGTTGCAGCCTTGGTTGGGGTCAATCCA
GTACTCTCCACTCTTCCAGTCAGAAGTGGGCACATCTTGAGGTCACCGGCAGGTGCCGGGC
CGGGGGTTCTTGCGGCTTGCCCTCTGGGCTCCGGATGTTCTCGATCTGCTTGGCTCAGGCTC
TTGAGGGTGGGTGTCCACCTCGAGGTCACGGTCACCGAAACCTGCCCGGGCGGCCCGCTC
GA
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08_16537.2.edit

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TCGAGCGGTCGCCCGGGCAGGTTTCGTGACCGTGACCTCGAGGTGGACACCACCCTCAAG
AGCCTGAGCCAGCAGATCGAGAACATCCGGAGCCCAGAGGGCAGCCGCAAGAACCCCGC
CCGCACCTGCCGTGACCTCAAGATGTGCCACTCTGACTGGAAGAGTGGAGAGTACTGGAT
TGACCCCAACCAAGGCTGCAACCTGGATGCCATCAAAGTCTTCTGCAACATGGAGACTGGT
GAGACCTGCGTGTACCCCACTCAGCCCAGTGTGGGCCCAGAAGAAACTGGTACATCAGCA
AGGAACCCCAAGGACAAGAGGCATTGTCTTGGTTCGGCGAGNAGCATGACCCGATGGATT
CCAGTTTCGAGTATTGGCGGCCAGGGCTTCCCGACCCTTGCCGATGTGGACCTCGGCCGCG
ACCACCGCT
```
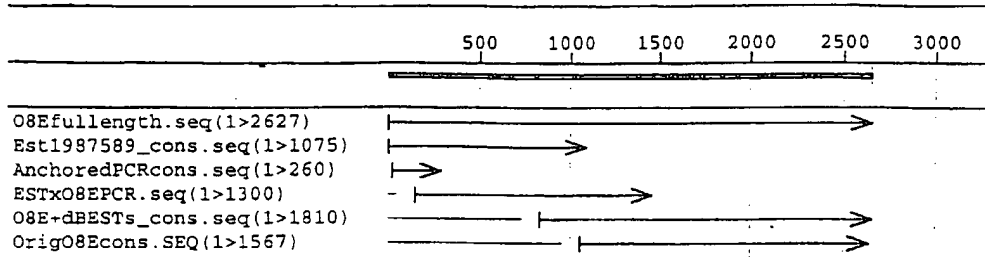
FIG. 15EEE

FIG. 16